

EXCLUSIVE CIO SECURITY SPENDING SURVEY:
WHERE THE MONEY IS GOING ■ WHERE IT SHOULD GO Page 58

SEPTEMBER 15, 2002 \$9.00

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The Magazine for Information Executives

TOUGH USERS

Who They Are
Why They Act Like That
How to Win Them Over
Page 68

AMF Bowls a Perfect
CRM Game
Page 76

The action is in
the boardroom for
3M Vice President of IT
David Drew. That is
where the company's IT
future is decided. Call it
governance—the CIO's
most important job.

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**Magazine
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Publication Editors

BETTER GOVERNANCE

How to Make Successful IT Investment Decisions

PLUS Architecture Dos & Don'ts Page 48



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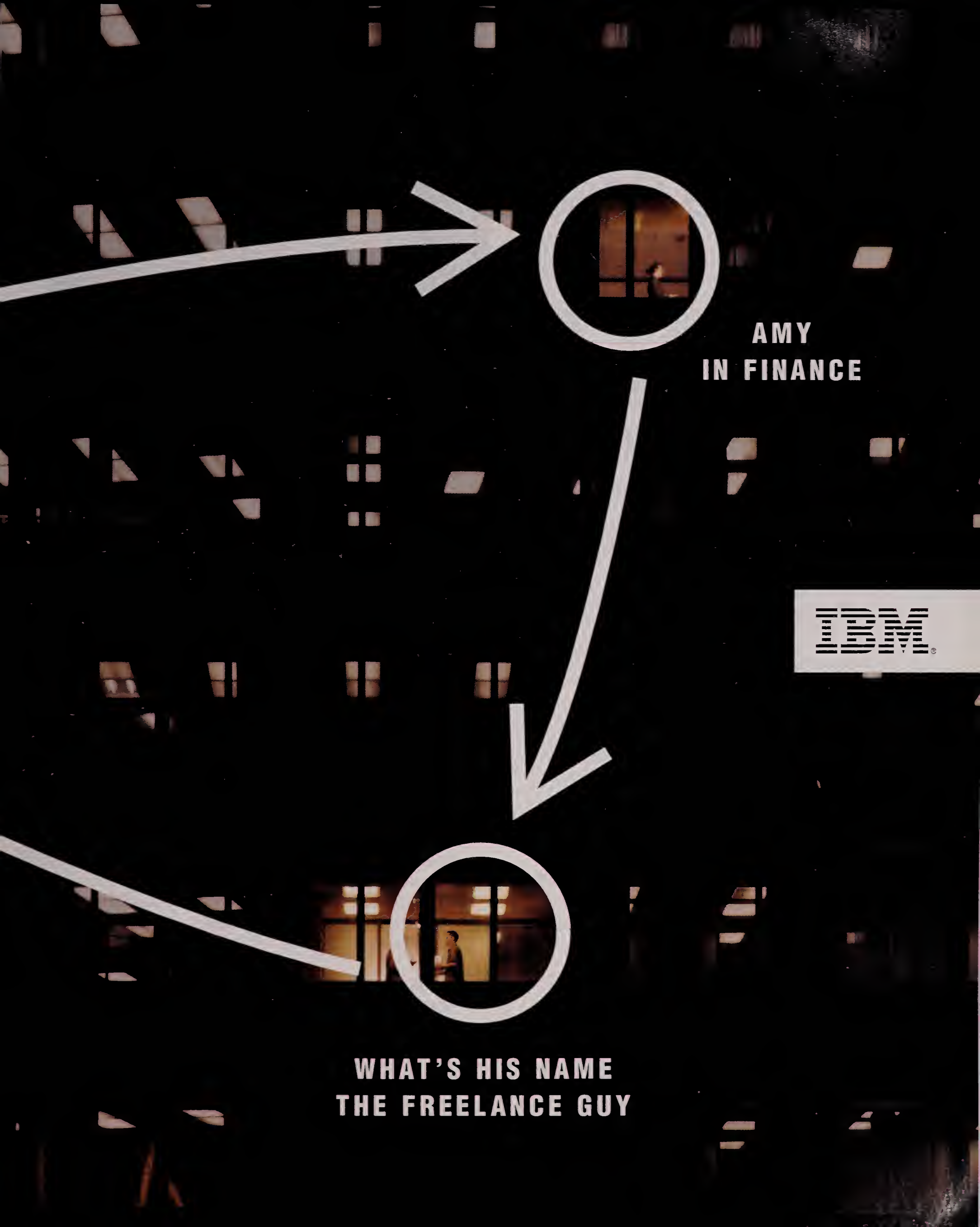
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VOL. 15 • NO. 23 • SEPTEMBER 15, 2002

Cover Story

GOVERNANCE | 48

The Powers That Should Be

IT decisions have to reflect the goals of the business and engage the attention of the business, often without the participation or even the interest of the business. Sound hard? It is. But here's what you can do to make it easier.

By Christopher Koch

COVER PHOTO BY PER BREIEHAGEN



David Drew, 3M's vice president of IT, developed a governance structure that promotes 3M's IT goals—standardization, cost savings and ROI—at the functional and business unit levels.

Features

SECURITY SPENDING SURVEY

The Best Offense | 58

While most security dollars go to technology, CIOs in our exclusive survey say investments in staff—and education efforts to guide them—must back up that robust firewall.

By Ben Worthen

USER MANAGEMENT

How to Win Friends and Influence Users | 68

The ability to handle tough users is a vital skill for CIOs, since the success of any enterprisewide implementation hinges on user adoption. *By Stephanie Overby*



At first, Police Capt. **Len Murray** didn't want Des Moines' new CIO, **Michael Armstrong** (right), running police systems. But Armstrong took his time—and his lumps—and won over the police and 14 other city departments.

CASE FILES: CUSTOMER FOCUS

Bowling for Customers | 76

After failing miserably on its first attempt, AMF Bowling Products got sales-force automation right. Here's how they did it.

By Alice Dragoon

SYSTEMS INTEGRATION

How to Get Your House in Order | 82

Everyone knows that every warehouse should run on the same system and be integrated seamlessly with the business's back end. But what everyone knows and what everyone can do are two different things. *By Meridith Levinson*

BOOK EXCERPT

How to Plan for the Short Term | 90

Being quick, nimble and reactive is the order of the day. Start by getting rid of the long-term mind-set. *By Chuck Martin*

MORE ►►►

And now, a few words about data back up:

For the tech crowd:

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Columns

PEER TO PEER

His Side of the Mattress | 38

CIO Steve Williams had to figure out a way to save his company's ERP project. But first he had to figure out the company's business. *By Steve Williams*

TOTAL LEADERSHIP

Take It to the Next Level | 42

Challenges for CIOs who think they've done it all. *By Christopher Hoenig*

NET GAINS

Getting Real

About Getting Paid | 110

What if companies were compensated based on the value they created for their customers? *By Mohanbir Sawhney*

FROM THE PUBLISHER

A New Pitch | 114

Startup tech CEOs may know technology, but they are clueless about marketing.

By Gary Beach

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The scandal effect; Outsourcing in a nuclear hot zone; HP's new CIO on the Compaq merger. *And more*

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CIO Best-Sellers

EMERGING TECHNOLOGY | 98

Who's on Your Network?

Many organizations are finding that user authentication policies, antivirus software and firewalls aren't enough to keep networks safe, which explains the growing market for intrusion detection technology. How safe are you? *By D.F. Tweney*



WASHINGTON WATCH | 32

Health-care integration may be an expensive prescription.

EMERGING TECHNOLOGY | 98

Intrusion detection systems can work, but they require time and money.

By D.F. Tweney

COOL PRODUCT | 102

Network security gets tougher with the AntiFirewall.

UNDER DEVELOPMENT | 104

Biological viruses get useful by building high-tech materials.

COMPANY TO WATCH | 106

Edocs looks to give IT some assistance with self-help savings.

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Web services is still in its infancy.

In Every Issue

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CIOs need to keep the little, low-value decisions out of the boardrooms.

By Richard Pastore

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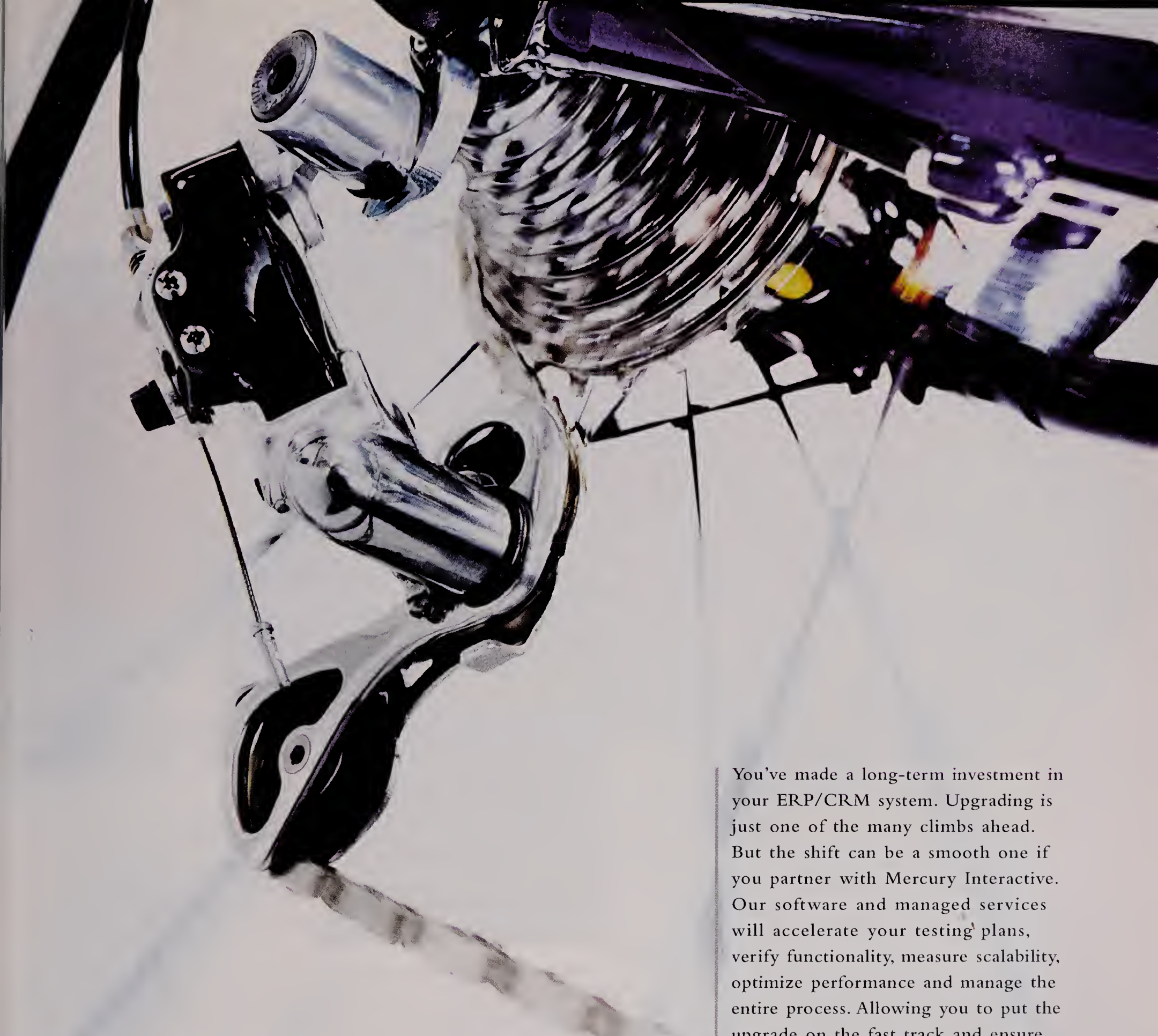
EXECUTIVE SUMMARY | 120

Abstracts of all the feature stories found in this issue.



"In today's enlightened IT world, knowing the business seems like a cliché, but in reality, its importance cannot be overstated."

—Steve Williams, CIO of Mattress Giant, on understanding your company Page 38



shift smoothly

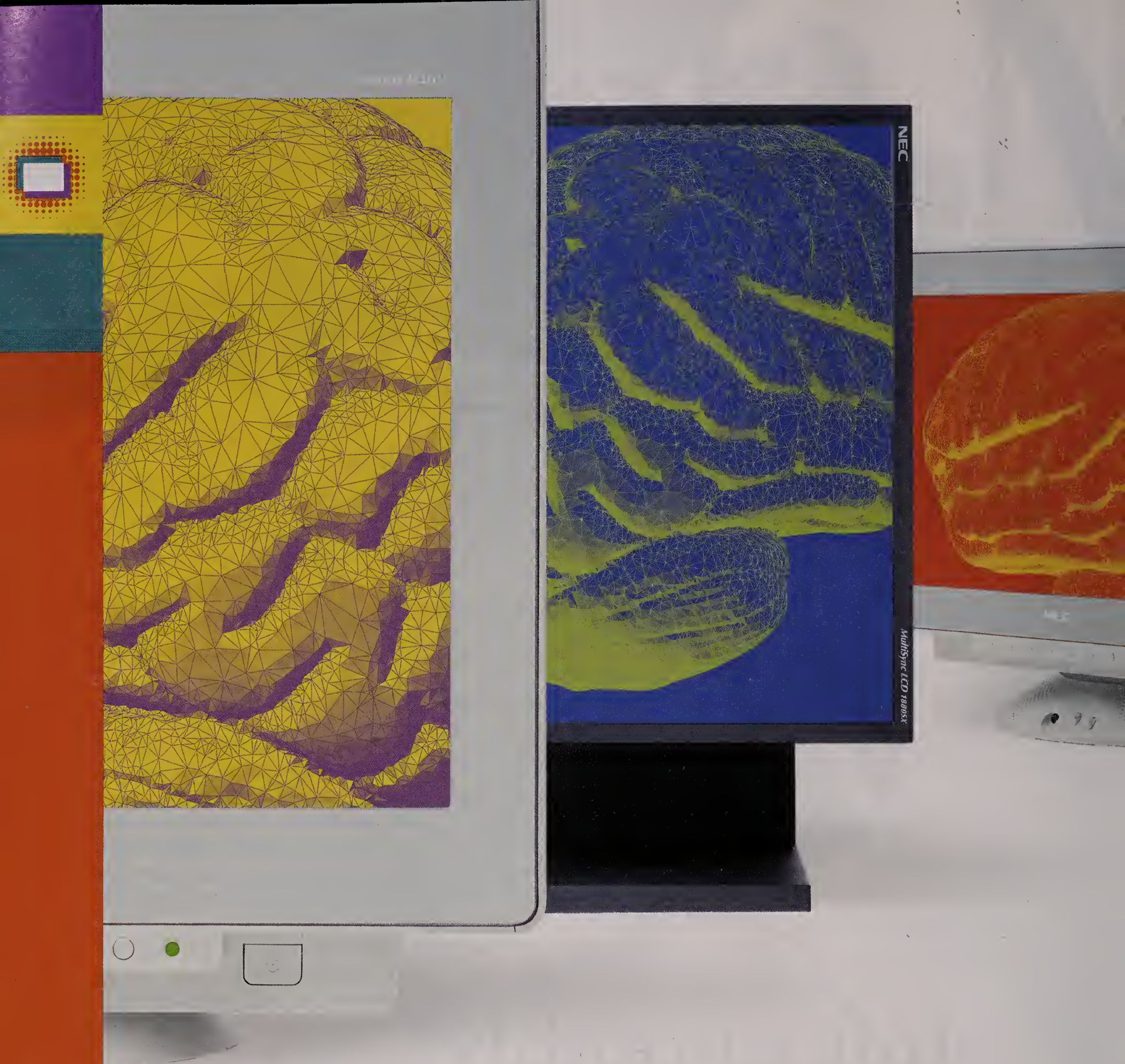
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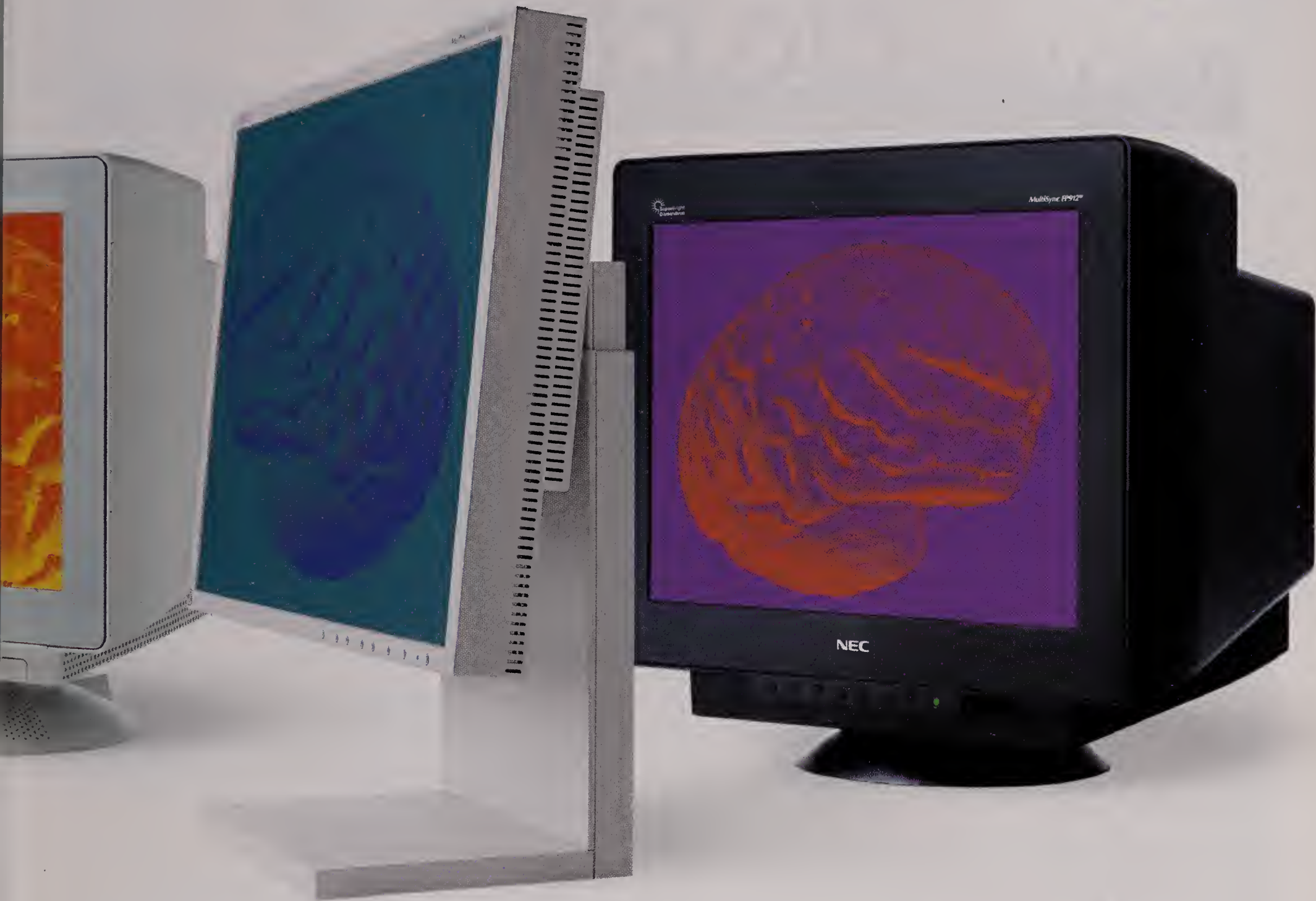
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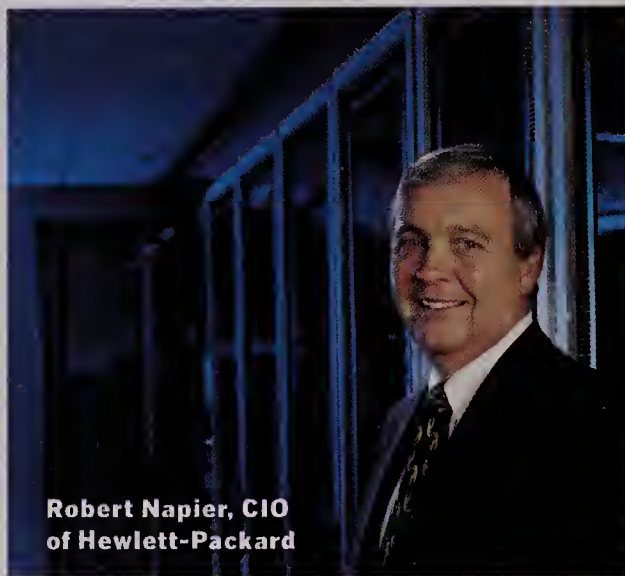
WEB >connections

Interactive features from September 15 to September 30

READ MORE

HP's CIO Tells All

Our interview with **Robert Napier**, CIO of Hewlett-Packard, begins on Page 30 and jumps to the Web. Go online to see how Napier built team spirit among the merged HP and Compaq tech staffs, and read about his plans for enhancing his supply chain.



Robert Napier, CIO
of Hewlett-Packard

TALK BACK

What is the IT governance strategy in your company?

Deciding on the decision-making mechanisms and the decision-making accountabilities are the keys to IT governance (see **The Powers That Should Be**, Page 48). How have you made the big decisions?

WEIGH IN

How do you deal with Nervous Nellies?

The success of expensive enterprisewide IT projects ultimately hinges on user adoption (**How to Win Friends and Influence Users**, Page 68), and the ability to handle tough users has become a vital skill for all CIOs. How do you deal with them?

ASK THE AUTHOR

Why is long-term planning on the outs?

Forget the long term. The secret to survival is *Managing for the Short Term*, which is a new book by former IBM exec Chuck Martin. Read our excerpt, **How to Plan for the Short Term** (Page 90), then grill Martin. But time is short—you have only until Sept. 30.

Find links to the stories mentioned above in the **WEB CONNECTIONS** box at www.cio.com.

Our Daily Web **MONDAY Tech Tact** Technology Editor Christopher Lindquist on what's next. **TUESDAY Alarmed** Security experts Sarah D. Scalet and Scott Berinato give you something new to worry about. **WEDNESDAY Metrics** Web Writer Jon Surmacz makes sense of the numbers. **THURSDAY Sound Off** Web Editorial Director Art Jahnke opines on ethical dilemmas. **FRIDAY The Big Picture** Charts and graphs worth a thousand words.

The Darwinmag.com Connection

CIO's online sister publication explains technology for the nontechnology executive. The following Darwinmag stories relate to ones in this issue.

CIO's **How to Get Your House in Order** (Page 82) says migrating to a single warehouse system may not always be the best way to go. Darwinmag's **Putting Two and Two Together** extols the virtues of integration.

CIO's **Bowling for Customers** (Page 76) tells how AMF put SFA (sales-force automation) to work. Darwinmag's **Do you Really Need A Customer Czar?** defines a new role for making CRM work.

Find these articles at www.cio.com/printlinks or on www.darwinmag.com.

New on the Site

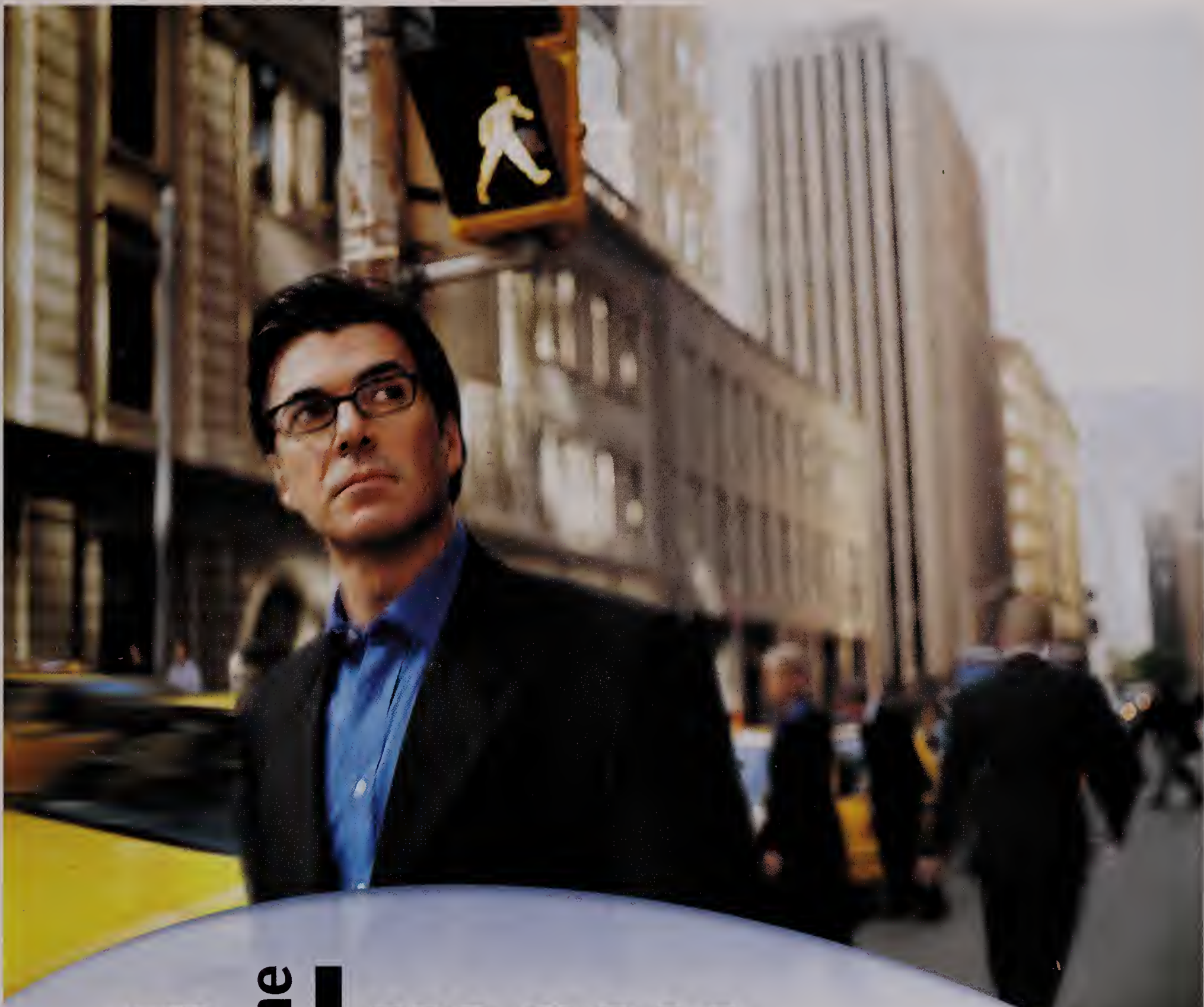
Our compact **Executive Summaries** provide a convenient way to quickly digest technology topics. A great pass-along resource too! To find them, go to www.cio.com/summaries.

CIO Reader Poll

Are you willing to be paid on value generated for your client?

CIO's **Net Gains** columnist, **Mohanbir Sawhney**, thinks you should be.

Log your vote at www.cio.com/readerpoll.



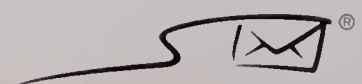
In the know.

Out of the office used to mean being out of touch. Now there's BlackBerry,[™] the wireless enterprise solution that keeps your team connected to people and information while on the go. BlackBerry is designed specifically for the enterprise, with impressive ROI potential. With BlackBerry Enterprise Server software, IT benefits from centralized management and control. Mobile users stay connected and productive. For those in the know, BlackBerry has become the corporate standard for wireless connectivity.

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INTEGRATION

IS ONCE AGAIN A

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USA PATRIOT ACT

United States Congress

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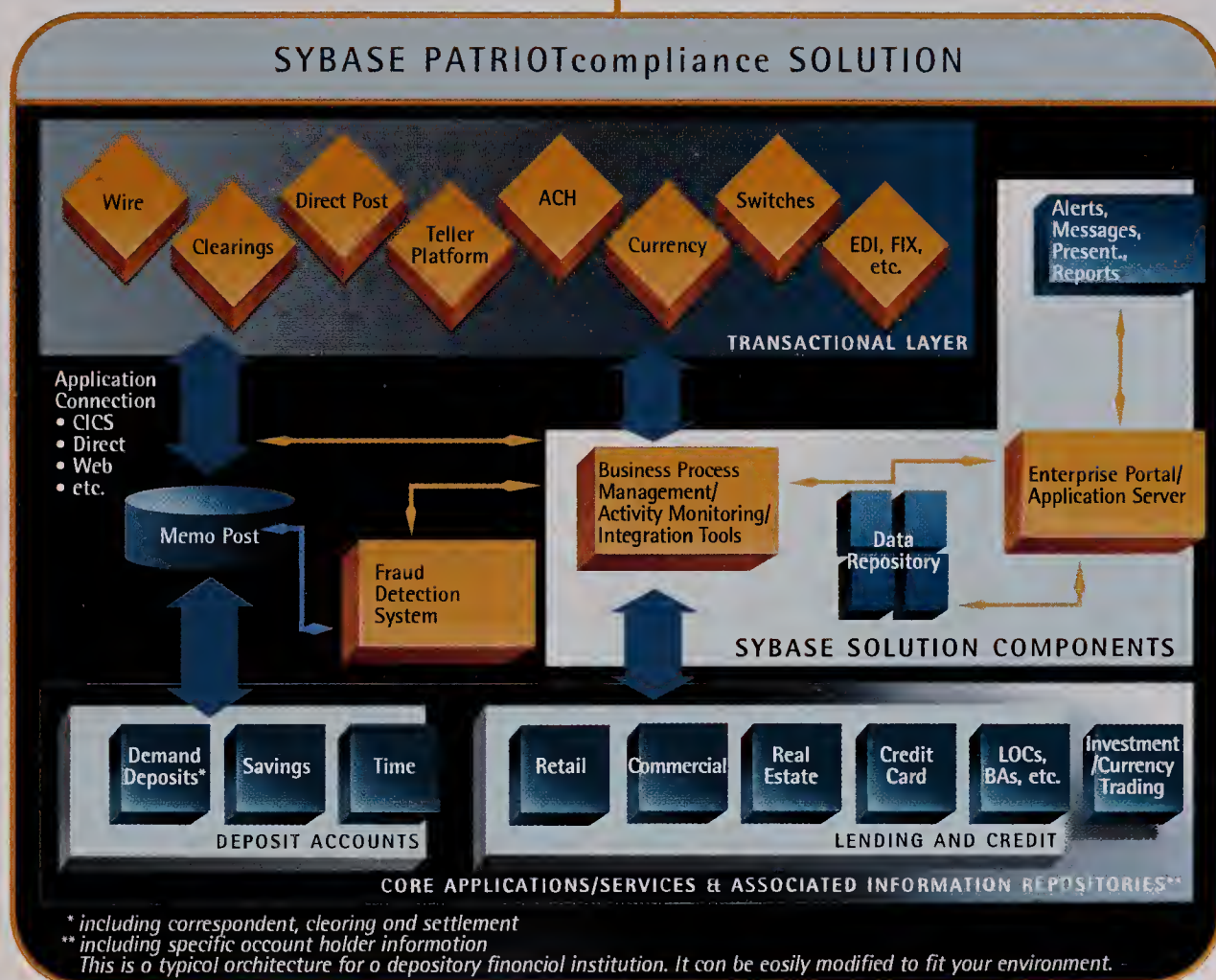
We can help you integrate all the disparate data and business applications running in your enterprise and extend them to any location in the world: platforms, application servers, components, databases, applications, processes, integration brokers, even mobile/wireless solutions. By choosing Sybase, you can preserve and extend your existing infrastructure investments, avoid proprietary traps, and improve efficiency across the enterprise.

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across applications and data stores, internal and external communications, management of the investigation process, maintenance of search and investigation histories and, of course, reporting and presentations.

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earn ISO 9001/TickIT Certification) and deploy the solution.

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IN THE END IT LOOKS LIKE THIS

Every solution will obviously be unique. But typically, you'll find a secure front-end employing the Sybase Enterprise Portal, with pre-built capabilities for list, filter and rules management, searches

demographic and transaction information from your core systems.

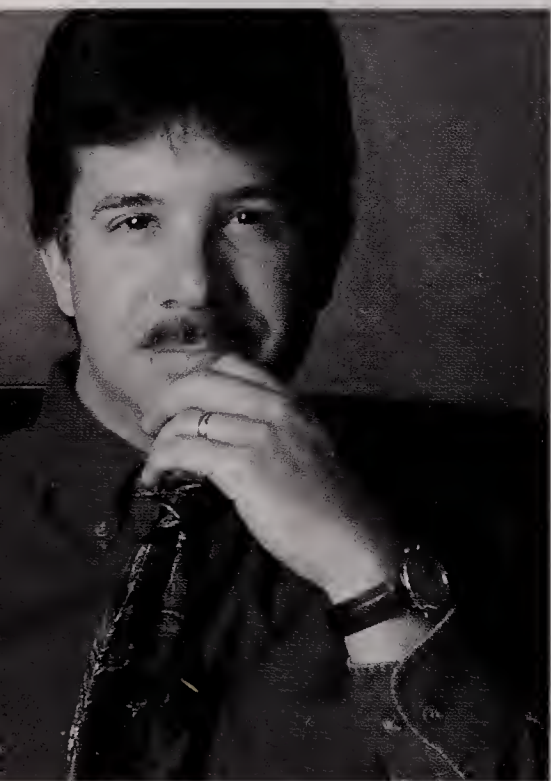
We have the tools and skills you need to be in compliance before October.

We can help you get started now at www.sybase.com/integrationsolutions.



The USA PATRIOT Act contains strong measures to prevent, detect and prosecute terrorism and international money laundering, greatly expanding the breadth and depth of the old laws. Broadly stated, the act requires that financial institutions know their customers and, to the greatest extent possible, their customers' customers. Compliance for bankers and securities dealers is required by October 2002. Non-compliance could involve costly civil and criminal penalties.

From the Editor



Visit our Leadership and Management Research Center at www.cio.com/leadership.

Governance Blues

DID YOU EVER NEED a decision made, and you couldn't get the attention of the person or persons who had a critical say in the decision? An executive puts you off for weeks, then suddenly goes on a two-week vacation to Bali. So you make the decision yourself without his input. Three months later, the exec—long back from his vacation and resettled into his normal pattern of chaotic inaccessibility—stops by to ask how the hell you came up with such a questionable course of action.

Multiply this common scenario by a whole department and millions of dollars at stake, or a whole company and billions of dollars, and you have the reason why IT governance drives CIOs crazy. Right now at companies across the planet, supposedly sane executives responsible for the fate of companies refuse to take part in such pivotal IT and business decisions as architecture choices, standards and infrastructure platforms. And to add injury to this insult, they lay all the accountability for the decisions' success (or more likely, lack of success) on the IT group.

But wait a minute. Should CEOs or business unit presidents really be spending their time in a

discourse about the merits of standardizing on .Net, XML, 802.11, 2.5G or 3G, Compaq or Dell, kidney or lima beans, laces or Velcro—ENOUGH! They don't want to be drowned in a geek pool of arcana. That's what they pay *you* for.

The CIOs in this issue's cover story (see "The Powers That Should Be," Page 48) either kept or lost the attention of their executive committee members by the level of detail they inflicted on them. It turns out that architecture is best kept out of the boardroom. Architecture boards can handle that. The CIOs also use automatic thresholds to prevent every little, low-value decision from rising to the attention of this august body. They build in accountability where it belongs—with the business users and function heads who control the processes that use these systems and operate on these platforms.

Take a cue from these governance warriors and set up a multilevel steering system that doesn't run down your executive partners. While everything may seem critically important to you, it just ain't so at the boardroom level. So what's critical for top executives? You decide. I'm off to Bali.

A handwritten signature in dark ink, reading "Richard Pastore". The signature is fluid and cursive, with a long horizontal line extending from the end.

Richard Pastore
Deputy Editor
pastore@cio.com



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InBox

Reader Feedback

ABOUT THE LITTLE BANKS

Someone who knows I am the president of a small community bank gave me a copy of a *CIO* article ["The Little Banks That Could," June 1, 2002]. I am writing to give you some feedback.

Some of what was introduced was very interesting; and since I try to have an open mind, I am still thinking it over. Though I must say certain assumptions made therein seemed quite unreliable—for instance, the statement was made that it's not true that small banks know their customers better than large banks.

I must concede that idea could be in some sense true if knowing your customer means compiling and analyzing a lot of information about someone, which is the arena of big banks, I suppose.

The other issue: Software can tell me how someone might be "likely" to make purchase decisions? The whole thing is a little creepy to me.

Sorry to be critical, but I just thought you might value one banker's perspective.

Ralph Leno • President • Gardner National Bank • Gardner, Kan. • rleno@gardnernational.com

I just finished reading "The Little Banks That Could." As you pointed out, small and midsize banks often make irrational pricing decisions because of

"unlikely" to get a home equity loan. Sparse data, inaccurate data and erroneous models can definitely throw off these customer profitability CRM solutions.

Jeremy Bachmann

Principal

Espenschied | Bachmann Group

Thousand Oaks, Calif.

jeremy@e-bgroup.com

ETHICS APPRECIATED

Your article ["Take the Pledge," July 1, 2002] is timely. But do you have any hard numbers on how ethics has affected the bottom line?

From my point of view, brand poisoning at the corporate level is the key driver for CIOs to avoid the "function creep" (I really like that term) of their customers' data.

Loyalty is not the future of brand marketing, because the brands need to evolve as fast as the customers. As the boomers fade away you will see this become more and more true. In any case, your most profitable customers are not repeat buyers because

they are the most incentive-driven consumers.

CIO as chief ethicist? It's never going to work. Ethical leadership has to come from the chairman or the CEO.

I look forward to more ethics in your publication. One case of interest you might like to look at is the Speedera and Akamai dispute—juicy terrain along the lines of medical ethics.

Thomas Ito

Wilton, Conn.

tc7@hotmail.com

A BREATH OF FRESH AIR TRAVEL

That was a beautiful article about JetBlue ["JetBlue Skies Ahead," July 1, 2002]. I grew up in Syracuse, N.Y., and moved to Dallas in 1996. JetBlue is a breath of fresh air to air travel in the Northeast United States and the Eastern Seaboard corridor. As president of a Dallas-based marketing company, who started out as an art director 20 years ago on the startup of Empire Airlines (which was the Southwest of the Northeast until it was acquired by USAir), I was fascinated by your article about how they have leveraged IT to control costs.

Howard LaMunion

President

The ConsulttUs Group

Dallas

lamunion@consulttus.com

WHAT DO YOU THINK?

Send your thoughts and feedback to letters@cio.com. Letters may be edited for length or clarity.



the lack of integrated customer data. We've seen in our practice, however, that these banks must use caution in employing off-the-shelf solutions in creating customer profitability models. "Garbage in, garbage out" definitely applies here.

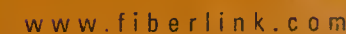
As a test, we run some of the bank's senior executives through the models before employing them bankwide. We've seen CEOs deemed poor prospects and vice presidents with \$100,000 in home equity shown to be

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Ask the Expert by Unisys

With 20 years in the outsourcing business, Managing Director José Cunningham is responsible for strategic business development at Shaw Pittman Global Sourcing, a technology-based sourcing practice, with 150 lawyers and business professionals globally.

> *Is the business-process outsourcing market segmented?*

> Yes. There are domain or process experts, specializing in discrete applications like payroll and logistics. There are "thought leadership" or strategy outsourcers, who are often big consulting firms that initially had ties to accounting and financial firms. There are traditional IT outsourcers who back in the late 1980s entered into big contracts to essentially "take over" the bulk of IT operations of some customers. And now there are business-process outsourcing "pure-play" firms providing services around specific business functions like human resources. Some are better at transactional outsourcing; others take a more strategic approach.

> *What should you look for in a good business-process outsourcing partner?*

> The typical contracts are in the 3- to 7-year range, so look for a partner with financial stability. Then look for a company that has specific vertical market expertise that matches your requirements, one that has delivered both technical and business functions within that industry and has some proven benchmarked operational strength. Finally, look carefully at cultural compatibility. You have to look forward to working with this partner again tomorrow, so invest in developing the right relationship and governance structure.

> *Are there other factors?*

> The business world today—and everything around it—is in a state of constant change, even hyperchange. Your key partners and the contracts you write with them must accommodate these new realities. They must be as flexible and responsive as the change around you demands. Plus, business-process outsourcing is inherently people-based. It is aimed at a higher functional level than traditional IT outsourcing, and is much more complex.

> *Are there key differences between business-process outsourcing and traditional IT outsourcing?*

> Smart buyers of business-process outsourcing have learned that the interdependencies of IT performance and business performance are much higher than in IT outsourcing because there is a higher level of integration between IT and business processes. And when it comes to pricing business-process outsourcing, there are few industry standards or accepted commercial comparisons to help you develop the best service-level agreements, metrics, and pricing constructs.

> *Talk about the basic value proposition of business-process outsourcing.*

> Today's enterprise must focus on its core strengths and get comfortable releasing what is noncore. That's the best way to reduce costs per transaction of these noncore areas; namely leaving the work to others for whom these tasks are a core competence.

> *Anything else?*

> In some industries and vertical markets—like health care, utilities, finance, and increasingly telecom—there are mounting legal, regulatory, and cost pressures for certain standards of performance, often in areas that fall into this noncore category. These industries want and need to meet these new requirements, but they don't want to throw a lot of infrastructure and additional employees at doing so. For these and other firms, business-process outsourcing should be considered a sound business strategy. But they must remember that even though business-process outsourcing is the fastest-growing IT services segment, it's still fairly immature. Accordingly, they've got to do their homework on the multitude of solutions and remember that not all service providers are alike.

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trendlines

the NEW the HOT the UNEXPECTED

Edited by Lafe Low and Michael Goldberg

C I O C A R E E R S

The Scandal Effect

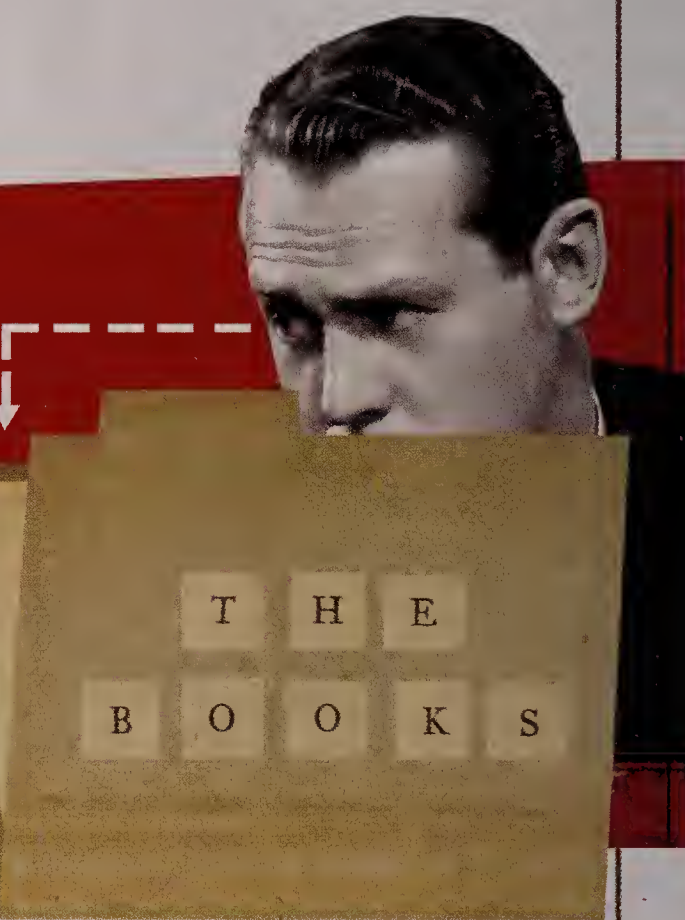
IT USED TO BE that a company, especially if it was in the Fortune 500, could lure a new CIO with little more than an attractive compensation package and a handshake meeting with the CEO.

But today, CIO candidates are looking at potential suitors—particularly public companies—with a sharply critical eye. They're demanding meetings with boards

of directors and insisting on clauses that provide generous severance packages should some preexisting condition cause the company to crash. They even want to study the latest audit and know who is doing the accounting. (Is that you, Mr. Andersen?)

"The impact of Enron, WorldCom and others has shown that solid due diligence and business process management reviews are back in vogue," says CIO job-seeker Edward Nesta. Nesta has been looking for a CIO position since leaving his post as senior vice president of operations at The Leading Hotels of the World in New York City last September. "I have excluded companies from my target list due to what I have heard, read or knew," he says.

Recruiters report that Nesta's account is not an isolated one. Sept. 11 made job-hoppers more cautious. Add to that the chilling effect that recent corporate scandals have had on executive recruiting, and you begin to see that CIOs have good company. "There's a lot of reticence out there. What it boils down to is people are being a lot more cautious, and they're hesitant to make a move without a lot more guarantees," says Robert McHale, who heads up Korn/Ferry International's mid-Atlantic CIO practice in Tysons Corner, Va.



Russ Tessman, leader of the IT division at recruiter Vermillion Group in West Des Moines, Iowa, says he recently had a CIO pull out of an interview because of a drop in the company's stock price. "A year, a year and a half ago, he would have been much more willing to take that risk," Tessman says.

David Blumhorst, laid off last May as senior director of IT of Clarent, a Redwood, Calif.-based telecom equipment company, has been doing contract work for various companies as he looks for the right fit for full-time work. "I'll contract for a while, and if there's a fit I'll hire on," he says. Blumhorst is currently contracting with Project Arena, an Oakland, Calif.-

Continued on Page 26

STATSHOT

9.9 million: estimated total IT workforce in 2002 (down from 10.4 million in 2001)

2.1 million: IT workers hired in 2001

2.6 million: IT workers dismissed in 2001

1.1 million: estimated aggregate demand for IT workers in 2002

578,711: estimated number of positions that will remain vacant due to lack of qualified workers

33 months: minimum length of time hiring managers want workers to stay on the job

84 percent: amount of companies that retained IT workers for that 33-month period

SOURCE: INFORMATION TECHNOLOGY ASSOC. OF AMERICA



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Scandal Effect

Continued from Page 24

based project management solutions provider as vice president of services and is in discussions about taking on a permanent role. This is not to say that no one is taking on new CIO jobs (see our monthly On The Move page). Public companies with a proven CEO, solid financials and a clean ethical history will continue to draw top CIO talent, says Rich Brennan, leader of the global CIO practice at Spencer Stuart in Chicago. Brennan placed Jean-Michel Ares (former CIO of GE

Power Systems) at Coca-Cola and Patricia Morrison (former CIO of Quaker Oats) at Office Depot in Delray Beach, Fla., among others in the past year.

And Brennan recently placed a new CIO at a company facing asbestos litigation, which he declined to name. "We finally got someone to accept, but not until he spent a lot of time with the general counsel of the firm to find out that the problems were not as bad as the newspapers were making them

out to be," Brennan says.

McHale says the rash of scandals has been a boon for the public sector, where CIO positions have gone begging at top federal levels. "CIOs are starting to look at these positions in a new light," he says. "Ordinarily they wouldn't have considered a federal government position as interesting, but boy, compared to what's going on in the private sector, it seems like a good place to be." —Stephanie Overby

OFFSHORE OUTSOURCING

Outsourcing in a Nuclear Hot Zone

FOR THE MOMENT, tensions between India and Pakistan are subsiding, but the recent threat of war has forced many companies to reassess the risks of outsourcing work to India. The country's National Association of Software and Services Companies estimated the value of India's IT-enabled services industry at approximately \$13.5 billion during 2000. That translates into many companies maintaining investment in a country that has been teetering on the brink of war. Two-thirds of those companies are based in the United States.

Stephanie Moore, vice president and research leader for Giga

Information Group based in Norwalk, Conn., predicts that more companies will diversify their outsourcing, especially to Canada, China, Mexico, Russia and the Ukraine. "There is a new level of risk in India right now," she says. "The only thing people can do is have valid contingency plans that are actionable and immediately usable. Besides developing backup resources nearby or in another location, a lot are considering cross-training in-house staff so they at least know where documentation is. That's a big step given the climate of cost containment we're in now."

Moore's advice outlines what William Lewis, senior international liaison at LexisNexis in Dayton, Ohio, has done. "If something happened [in India], I could have everything in the Philippines within a matter of days, missing very little production," says Lewis. "There are [contingency] plans to relocate workers in India elsewhere around the world. Visas are prepared and ready for people." Lewis also keeps critical code in the United States and has banned corporate travel to India.

Molly Doland, partner at the law firm Shaw Pittman in Washington, D.C., which specializes in technology business transactions, says she is not aware of anyone who has backed out of India, although there have been discussions about risks and what the different parties are required to do to mitigate them. "All the major players have fairly healthy contingency planning in place," she says. "It's not like this hasn't gone on before; or it was entirely unanticipated."

India and Pakistan have rattled their sabers since the partition in 1947. Lewis points out that despite contentious internal politics and this ongoing conflict, India has a history of preserving the business environment. Pakistan is in the same boat. "Trade makes the world go 'round," says Bill Martorelli, IT research analyst with the Hurwitz Group in Framingham, Mass. "It creates stability. Hopefully, the stakes of what could be lost will figure into the Kashmiri situation." —Sandy Kendall



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Off the Shelf

Edited by Carol Zarrow

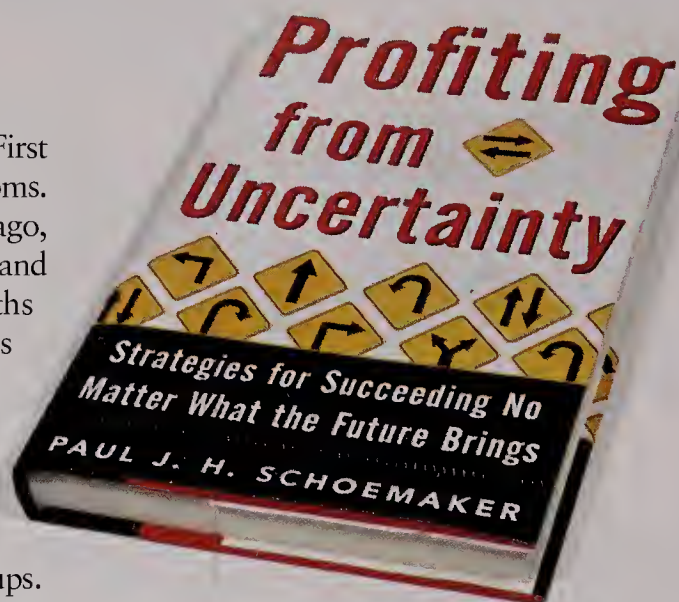
The Upside of Uncertainty

Profiting from Uncertainty: Strategies for Succeeding No Matter What the Future Brings

By Paul J.H. Schoemaker
The Free Press, 2002, \$30

THE TIMES, THEY ARE UNCERTAIN. First came the downward spiral of the dotcoms. Then the recession rolled in. One year ago, the world was dealing with the events and aftershocks of Sept. 11. A few months later, the Enron scandal hit. That was eventually pushed out of the headlines by a succession of similar revelations about other corporate giants. It seems the corporate community—and the world in general—has lately had to deal with massive shake-ups.

Paul Schoemaker, an authority on decision making and scenario-based strategic management, points out how uncertainty has created billion-dollar losses for industry giants such as Cisco Systems and Nokia. He goes on to offer business leaders lessons not only to help prepare for such shake-ups but also to benefit from them. When properly harnessed, Schoe-



maker argues, uncertainty can create billion-dollar gains.

Obstacles create opportunities, in his view. In fact, according to the author, we *need* ambiguity to create profit. "Common risks lead to common returns," he writes. "The opportunity to profit comes from uncertainty." Careful to distinguish profiting from profiteering, he says the goal of industry decision makers should not be to capitalize on hardship or heartbreak, but to benefit from anticipating and preparing for the possibilities.

While it's easy to say with 20/20 hindsight what Cisco or Nokia might have done to prepare for the unknown, it's another thing altogether to figure out what to do when you're in the midst of chaos and change. Being prepared for all possibilities is the key—but simply creating a Plan B, or even a Plan C, isn't sufficient to capitalize on the lightning strikes that seem to occur with ever-increasing frequency in the 21st century.

So Schoemaker goes on to provide an exhaustive how-to on such topics as generating and analyzing possible business and industry scenarios that embrace uncertainty; creating and

CIO Best-Seller List

5 The 21 Irrefutable Laws of Leadership: Follow Them and People Will Follow You
By John C. Maxwell
Thomas Nelson, 1998

4 Fish! A Remarkable Way to Boost Morale and Improve Results
By Stephen C. Lundin, Harry Paul and John Christensen
Hyperion, 2000

3 Execution: The Discipline of Getting Things Done
By Larry Bossidy and Ram Charan
Crown Business, 2002

2 Who Moved My Cheese?: An Amazing Way to Deal with Change in Your Work and in Your Life
By Spencer Johnson
The Putnam Publishing Group, 1998

1 Good to Great: Why Some Companies Make the Leap...and Others Don't
By Jim Collins
HarperCollins Publishers, 2001

SOURCE: DATA FROM THE WEEK OF JULY 29, 2002.
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BOOKTALK

"Customers are a critically important part of demand strategy, but demand goes far deeper and involves a greater array of forces and factors than customers alone can supply. In fact, companies that rely only on their customers can get themselves into trouble if they don't set a context within which they hear, understand and evaluate what customers tell them."

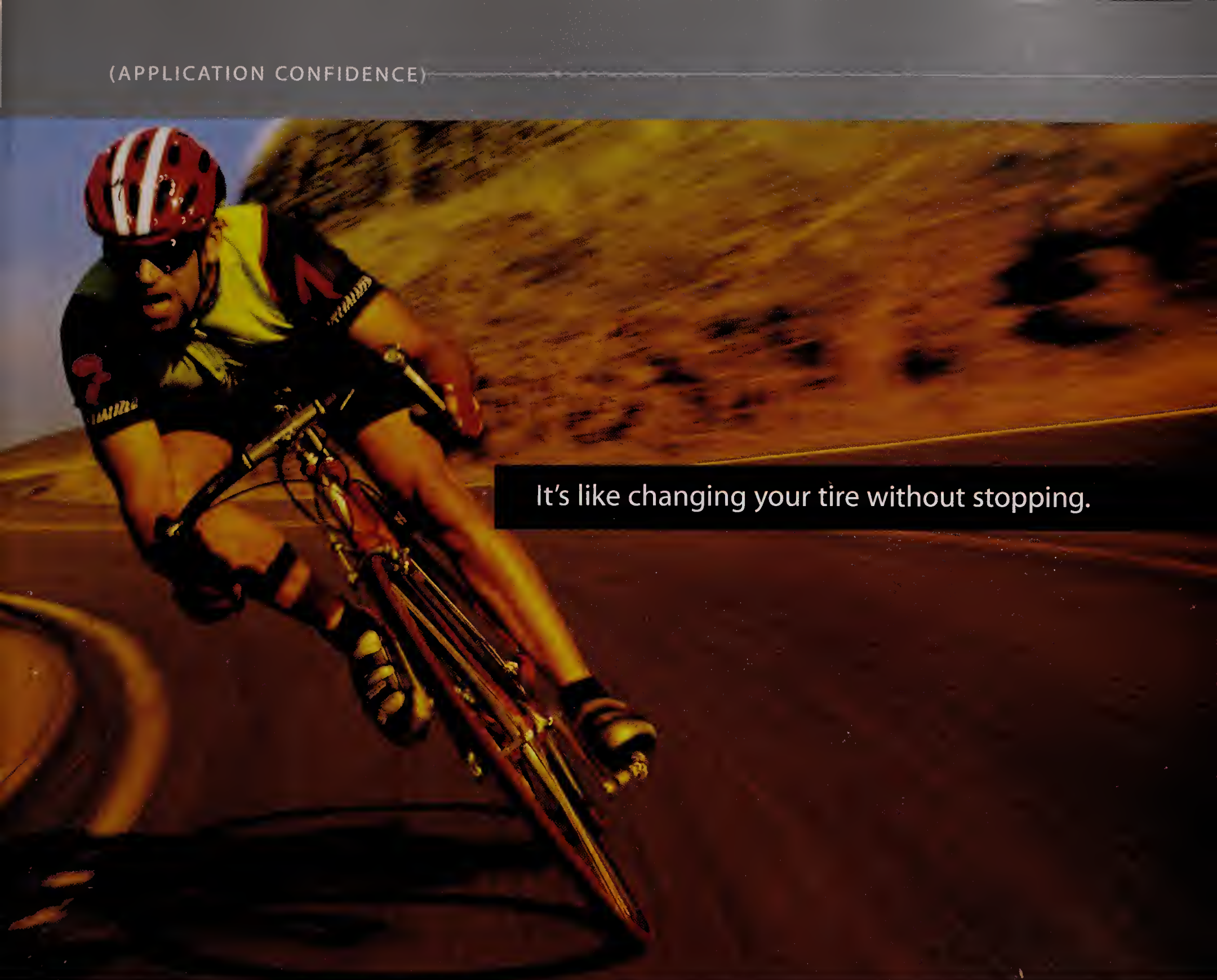
—From *The New Law of Demand and Supply: The Revolutionary New Demand Strategy for Faster Growth and Higher Profits*, by Rick Kash (Currency/Doubleday, 2002)

implementing a strategic vision and real options to deal with potential problems; and continuously monitoring the internal and external environment and making real-time adjustments.

Requisite reading for corporate decision makers, this book goes beyond traditional enterprise risk-management principles and theory. It addresses the less quantifiable types of risk and the upside of uncertainty. Appendices provide background on the psychology of uncertainty and related self-tests (How confident are you? How well do you deal with ambiguity?), as well as an "uncertainty toolkit" of approaches for dealing with the future.

—Stephanie Overby

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I N T E G R A T I O N

Q&A with Robert Napier, CIO at Hewlett-Packard

WHEN HEWLETT-PACKARD finally got to fork over its money for Compaq last May, you wouldn't have expected anyone from Compaq to be running anything. That's the unwritten law of the business jungle: The dominant company gets all the positions of power in the new company. But Robert Napier, 55, former CIO of Compaq, is now senior vice president of IT and CIO of the combined companies. He's a clear product of Compaq's brasher culture, and he worked for HP's CEO Carly Fiorina in an earlier life, which may help explain his emergence. But there's more to the new HP than meets the eye, as we discovered when Executive Editor Christopher Koch interviewed Napier in July.

CIO: How is the merger going?

Robert Napier: It's going quite well. We had a lot of great day one successes: day one e-mail systems on a global basis, one [website at] HP.com and—I think this was extremely important—one employee portal where all employees from either premerger company could get a consistent answer to most of their questions at a very trying time such as this when you put two companies this size together. [It took] huge network integration—39,000 network devices across 160 countries. In essence, we had an enormous day one success. It was a necessity for two high-tech companies.

The interesting thing that I'm not sure I would have thought about from a pre-merger standpoint—but it's really come and smacked me upside the face post-merger—was the enormous addition [the day one successes] made to employee morale. People said, You know this stuff can really work; this integration can really work. Right on their desktops they had proof point, and I remember I got all kinds of e-mails from folks in the first week, even some of my IT folks. A former Compaq person went into an HP plant in France,

found a cube that wasn't occupied, plugged an Internet cable into the wall of that cube and, bingo, was attached to all of his former access in Compaq seamlessly. He didn't have to change anything on his laptop; all the scripts were handled behind the scenes. I think that was a big deal.

The merger was approved during May, but when did you actually start doing all this work so that it was ready on day one?

We started around Sept. 10th of 2001. I think we announced to the world on Sept.

4th, or something like that, and by the 10th we had a pretty comprehensive yet small team of IT infrastructure folks from both sides starting to map out what we needed to do.

CIO's conversation with Napier continues on the Web. Log on to find the answers to such questions as how to deal with employees who are working behind the scenes to merge companies that might not ultimately have approval to merge; how to maintain a single face to customers; and how to successfully build teams after such a mega-merger.

CIO.COM To find the continuation of our **CONVERSATION WITH ROBERT NAPIER**, go to the Web Connections box on our homepage, or go to www.cio.com/printlinks.



Hewlett-Packard CIO Robert Napier started planning for an integrated HP-Compaq eight months before the controversial merger gained approval.

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Washington Watch

Edited by Elana Varon

Health-Care Integration May Be an Expensive Prescription

HOSPITALS, DOCTORS' OFFICES and insurance companies would have seven years to develop systems for sharing administrative and patient data, according to a bill proposed by Sen. Edward Kennedy (D-Mass.). But experts in health-care IT are leery of backing the measure without more proof of its ROI.

Kennedy says his Efficiency in Health Care Act would save time and money by giving patients, health-care practitioners and insurers access to treatment information within two days of a doctor visit. It would improve patient safety by requiring health-care facilities that treat at least 20,000 patients a year to deploy computerized physician order entry systems to record prescriptions and other doctors' orders.

In a June speech, Kennedy said modern-



Sen. Edward Kennedy

izing administrative systems, as he suggests, would reduce the cost of transactions processed by hospitals to less than a penny. But CIOs in the health-care industry foresee expensive system implementations.

Health-care companies have already begun to tackle some aspects of computerizing patient records. According to the American Society of Health-System Pharmacists, 4 percent of hospitals had deployed physician order entry systems in 2001. They have little incentive to pursue the industrywide integration that Kennedy calls for. "There's great societal value," says John Glaser, vice president and CIO of Partners Health-Care System in Boston, because health-care information would be more accurate and doctors would be able to spend less time on mundane administrative tasks. But the financial ROI isn't clear. To provide a monetary incentive, the measure calls for up to

UPDATE

FCC Opens Air for Wireless

The Federal Communications Commission voted 3-1 on Aug. 8 to free the broadcast spectrum for wireless applications by forcing TV makers to equip new sets with digital tuners by mid-2007. The FCC won't turn over the spectrum until 85 percent of TVs purchased are digital (less than 1 percent are today).

With the ruling, that goal is more likely to be reached by the end of the decade. Wireless carriers that want to buy spectrum now win. TV manufacturers plan to sue, complaining the tuners will add \$250 to the cost of a set (see Washington Watch, Aug. 15, 2002). —Ben Worthen

\$250 million a year through 2007 to subsidize the projects.

Sam Karp, CIO of the California Health-Care Foundation in Oakland, a nonprofit health-care research group, says the money Kennedy proposes wouldn't cover much of the expense. He doubts CIOs would want to make integration with trading partners—necessary to give insurers the latest claims information—a big priority when they have work to do modernizing internal systems.

Health-care industry CIOs weren't paying enough attention the last time Congress forced changes in their information systems by passing the Health Insurance Portability and Accountability Act. The headache of complying with the resulting security and privacy regulations hasn't gone away. There's still time, however, to weigh in on the Kennedy bill. The lawmaking process gets underway with a hearing before the Senate Committee on Health, Education, Labor and Pensions, which Kennedy chairs. At press time, the hearing was planned for sometime this month. —Sarah Johnson

Explainer: ICANN

The Internet Corporation for Assigned Names and Numbers (**ICANN**) is a private, nonprofit group set up by members of the Internet community in response to a 1998 U.S. Department of Commerce white paper that stated the need for an agency to handle global Net governance. ICANN has worked in cooperation with the Department of Commerce since November 1998, but its contract with Commerce ends this month.

ICANN manages the Internet's domain name system—including creating new domain names—and allocates IP addresses. Its work is invisible to most end users. When a company registers a domain

name, it deals with one of 156 registrars with which ICANN contracts.

The group is currently embroiled in a debate with Commerce and Netheads around the world over how much say it should have over technical policies for Internet privacy, security and ownership of Web addresses. ICANN wants more control; critics, including the Bush administration, say it should stick to managing bits and bytes.

If Commerce renews ICANN's contract it will dictate the group's agenda. No word on what happens if the department gives ICANN the boot, but rest assured, the Internet won't go dark. —S.J.

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● TUESDAY OCTOBER 15	Registration Open	8:00 a.m. - 6:00 p.m.	Sands - Exhibit Hall
	CDMA2000 Wireless Internet Optimization	8:30 a.m. - 4:30 p.m.	Venetian Room 607
	Wireless Data University	9:00 a.m. - 5:00 p.m.	Venetian Room 502
	National Summit on Interference in Healthcare Facilities	8:00 a.m. - 5:00 p.m.	Venetian Room 501
	Sales Office Open	9:00 a.m. - 5:30 p.m.	Sands Room 304
	Rebook for CTIA WIRELESS I.T. & INTERNET 2003		
	Wireless Developers Forum	9:00 a.m. - 6:00 p.m.	Sands Room 205
	WLAN Applications & Demonstration Conference	9:00 a.m. - 6:00 p.m.	Sands Room 103
	WIC General Member Meeting	3:00 p.m. - 6:00 p.m.	Venetian Room 505
	WIC General Member Reception	6:00 p.m. - 7:30 p.m.	Venetian Room 506
● DAY ONE WEDNESDAY OCTOBER 16	Registration Open	8:00 a.m. - 5:00 p.m.	Sands Exhibit Hall
	Federal Wireless Users' Forum (FWUF) Conference	8:00 a.m. - 5:00 p.m.	Venetian Room 506
	National Summit on Interference in Healthcare Facilities	8:00 a.m. - 5:00 p.m.	Venetian Room 501
	iHollywood Mobile Entertainment Summit	8:30 a.m. - 4:30 p.m.	Venetian Room 503
	Keynote Session	9:45 a.m. - 11:15 a.m.	Sands Exhibit Hall
	CTIA Educational Sessions	11:30 a.m. - 1:00 p.m.	
	Panel Session - Solution Safeguards		Sands Room 105
	Panel Session - Platforms & Applications		Sands Room 102
	Panel Session - Seamless Mobility		Sands Room 202
	Panel Session - Wireless Branding		Sands Room 205
	Global Wireless Education Consortium	1:00 p.m. - 5:00 p.m.	Venetian Room 605
	iHollywood Luncheon & Keynote	1:00 p.m. - 3:00 p.m.	Venetian Room 602
	Mobile Healthcare-Pre-Conference Tutorials	2:00 p.m. & 4:30 p.m.	Venetian Room 601
	CTIA Educational Sessions	2:30 p.m. - 4:00 p.m.	
	Panel Session - Enterprise Strategies		Sands Room 105
	Panel Session - Packaging Content		Sands Room 102
	Panel Session - Monetizing the Value Chain		Sands Room 202
	Panel Session - M-Commerce		Sands Room 205
	iHollywood Networking Reception	4:30 p.m. - 6:00 p.m.	Venetian Room 602
● DAY TWO THURSDAY OCTOBER 17	Registration Open	8:30 a.m. - 6:00 p.m.	Sands Exhibit Hall
	FWUF Conference	8:00 a.m. - 5:00 p.m.	Venetian Room 506
	Keynote Session	9:45 a.m. - 11:00 a.m.	Sands Exhibit Hall
	Exhibit Hall Open	11:00 a.m. - 6:00 p.m.	Sands Exhibit Hall
	CTIA Educational Sessions	11:30 a.m. - 1:00 p.m.	
	Panel Session - Use Cases I		Sands Room 105
	Panel Session - Hot Content		Sands Room 102
	Panel Session - Money Talks		Sands Room 202
	Panel Session - Customer Access		Sands Room 205
	Mobile Healthcare Conference	8:00 a.m. - 10:30 a.m.	Sands Room 203
	Opening General Session		
	Mobile Healthcare Conference	10:45 a.m. - 4:30 p.m.	Venetian Room 501/502/601/602
	CTIA Educational Sessions	2:30 p.m. - 4:00 p.m.	
	Panel Session - Use Cases II		Sands Room 105
	Panel Session - Wireless Internet Migration		Sands Room 102
	Panel Session - Delivery Systems		Sands Room 202
	Panel Session - Messaging Your Customer		Sands Room 205
	Exhibit Hall Reception	4:00 p.m. - 6:00 p.m.	Sands Exhibit Hall
● DAY THREE FRIDAY OCTOBER 18	Registration Open	8:30 a.m. - 5:00 p.m.	Sands Exhibit Hall
	Mobile Healthcare Conference	8:00 a.m. - 12:00 p.m.	Sands Room 203
	General Session		
	FWUF Conference	8:00 a.m. - 5:00 p.m.	Venetian Room 506
	Keynote Session	9:45 a.m. - 11:00 a.m.	Sands Exhibit Hall
	Exhibit Hall Open	11:00 a.m. - 5:00 p.m.	Sands Exhibit Hall
	Smart Pass Seminar - Oppenheimer Business Valuation	11:00 a.m. - 3:00 p.m.	Sands Room 103
	Mobile Healthcare Conference	2:00 p.m. - 4:30 p.m.	Venetian Room 501/502/601/602

Keynotes October 16 - 18

Day One – Hear from these leading enterprise service providers and their top customers on how they implemented a wireless data solution—what they learned, what they gained and why it can work for you.

Day Two – Wireless data is exploding in the mainstream consumer market in the form of "m-ertainment." Find out how these major entertainment companies are staking their piece of this \$13 BILLION market and what you can do to claim your piece of the pie.

Day Three – Two of the biggest drivers of wireless data are CONTENT and CONTENT DELIVERY. How will "the news" be delivered? Who is paying for content? Find out at this keynote of heavyweights of content providers.



Adel Al-Saleh
GM Global Wireless
e-Business
IBM



Jim Balsillie
Chairman & Co-CEO
RIM



Jacob Christfort
CTO & VP
Product Development
Oracle



Vyomesh Joshi (VJ)
EVP
Imaging & Printing Group
HP



Fred Huey
COO/CFO
Sega.com



Patrick Kennedy
EVP
Sony Pictures Digital
Entertainment



Jay Samit
SVP
New Media
EMI Recorded Music



Douglas Bush
VP & CIO
Intel



Juha Christensen
VP
Mobility Group
Microsoft

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Education

The educational program for CTIA WIRELESS I.T. & INTERNET 2002 is designed to deliver a comprehensive look at wireless data solutions and applications and how they can play a critical role in increasing profitability, productivity and efficiency.

CTIA Educational Tracks

Track I

**Mobile
Customers**

Track II

**Enterprise
Untethered**

Track III

**Content
Opportunities**

Track IV

**Wireless Internet
Landscape**

WEDNESDAY, OCTOBER 16
11:30 a.m. – 1:00 p.m.

Track I: Mobile Customers
Wireless Branding
Sands 205

Forget the cliché about getting beeped every time you pass a Starbucks or McDonald's with an unsolicited wireless ad. This session explores the realities of wireless as a powerful new branding channel. Hollywood is already promoting its movies via wireless phones and early-stage location-based services allow users to find the closest retailer of their choice via wireless-ready

directories. Wireless portal aggregators, research firms and industry visionaries in this session explore how wireless devices can be used to communicate with customers in new ways.

MODERATOR: Kirk Parsons, Sr. Director, Wireless Services, J.D. Power & Assoc.

SPEAKERS: Zachary Eller, Director, Partnership Marketing, Sony Pictures Digital Entertainment
Shane Furlong, VP, Market Strategy, Evolving Systems
Dale Gonzalez, VP, Wireless Research & Development, Air2Web
Claire Tondreau, Founder, HotSpring
Daren Tsui, President & Co-Founder, SkyGo

Track II: Enterprise Untethered
Solution Safeguards
Sands 105

Always of paramount importance, security remains the primary concern among IT managers who are considering adopting wireless enterprise solutions. Both external threats and internal fraud are the potential downsides when networks are loosened to provide broader access. Fortunately, many solutions, to be detailed in this session, exist to guard against such menaces when offering wireless access to corporate data.

MODERATOR: Tom Goodman, Director, Security & Risk Management, Aether Systems

CTIA Educational Tracks

SPEAKERS: **Tim Allwine**, *Director, Clearinghouse Services, VeriSign*
Greg Burdett, *Sr. Product Manager, Nortel Networks*
Jean-Louis Carrara, *Director, Telecommunications, Gemplus*
Jason Conyard, *Director, Wireless Business & Strategy, Symantec*
David Yach, *VP, Software, Research In Motion*

Track III: Content Opportunities Platforms & Applications Sands 102

As the number of wireless data applications increases, the questions regarding managing content delivery to the device and the subsequent interaction between user and content become more important. Some applications should be downloaded onto the device for use, while others should remain in the network. Some applications should be pushed out to the user while others make more sense in a pull model. Here, panelists review the application platforms available and debate the many options facing application developers trying to avoid forcing a square peg into a round hole.

MODERATOR: **Kendra VanderMeulen**, *Strategic Advisor, Kendra VanderMeulen, LLC*

SPEAKERS: **Boris Fridman**, *Chairman & Founder, Broadbeam Corp.*
Jason Kenagy, *Director, QIS Product Management, QUALCOMM*
Satoshi Nakajima, *CEO, UIEvolution*
Calin Pacurariu, *Treo Product Line Manager, Handspring, Inc.*
Ann Wettersten, *VP, Wireless Business Group, Sun Microsystems*

Track IV: Wireless Internet Landscape Seamless Mobility Sands 202

Wireless local area networking has become one of the industry's hottest issues over the last year. How can wide area network operators of licensed spectrum integrate these systems into their service offerings, and should they even try? Questions

abound over WiFi security issues, workable business models and whether WiFi proliferation will cannibalize 3G revenues. This session will debate the position of WLANs in the wireless Internet landscape and what opportunities and ramifications they hold for the industry's future.

MODERATOR: **Richard Siber**, *Partner, Accenture*

SPEAKERS: **Laurie Hoyt**, *Director, Business Development, Nextel*
Bill Krenik, *Advanced Wireless Architectures Manager, Texas Instruments*
Rob Mechaley, *Founder & President/CEO, rovingIP.net*
Andy Willett, *SVP, Product Management & Marketing, NetMotion Wireless*

WEDNESDAY, OCTOBER 16
2:30 p.m. – 4:00 p.m.

Track I: Mobile Customers M-commerce Sands 205

More than 100 million consumers carry wireless devices in this country, and the potential for impulse sales through them seems great. While there are many products consumers will never purchase using their wireless phones, opportunities exist. This session examines how wireless sales and transactions work, details the solutions that can enable such functionality, and explains how to take advantage of wireless as a virtual store front for the sale of many types of goods and services.

MODERATOR: **Robert Leathern**, *Sr. Analyst, Jupiter Research*

SPEAKERS: **Chase Franklin**, *Founder, President & CEO, Qpass*
Robert Frederick, *Manager, Device Access & Mobile Web Services, Amazon.com*
Mark McDowell, *President & COO, Invertix Corp.*

Track II: Enterprise Untethered Enterprise Strategies Sands 105

Making the decision to go wireless is a big step for enterprise IT managers. Integrating various enterprise IT systems into one powerful wireless tool requires many steps and must be guided by a central, all-encompassing plan. This session is designed to help IT managers develop a mobile strategy and to provide them with the tools necessary to build an end-to-end solution given the realities of the existing enterprise infrastructure. Discussions include legacy systems, system integration, wireless device management, security and wireless middleware.

MODERATOR: **Jonathan Atkin**, *Director, RBC Capital Markets*

SPEAKERS: **Mike Anderson**, *Sr. Director, Solutions Development, Oracle*
Letina Connelly, *Director, Enterprise Segment Strategy, IBM Pervasive Computing*
Andrew Harries, *SVP, Corp. Development, Sierra Wireless*

Track III: Content Opportunities Packaging Content Sands 102

Currently, there is no standard way to package and sell wireless data content, hindering customer adoption of these services. This session examines all the issues that must be addressed so that a unified merchandizing philosophy can be presented to consumers, eliminating the confusion that exists today. Discussion topics include content rating systems, identification of the value chain stakeholders, common metrics standards and nomenclature, developer channel strategies, as well as the all-important end-user experience.

MODERATOR: **Tracy Ford**, *Associate Publisher/Editor, RCR Wireless News*

SPEAKERS: **Rex Bull**, *EVP, Product Management & Marketing, ViAir*

Harry Kargman, *President & CEO, Kargo*
Sandeep Pannu, *Director, Market Solutions, Openwave Systems*
Steven Spencer, *CTO, ScreamingMedia*

Track IV: Wireless Internet Landscape Monetizing the Value Chain Sands 202

All players involved in the long and complex wireless data value chain must have the opportunity to profit if they are to work together. Content developer, carrier, service provider and middleware entities all have a stake in this game. The ability to effectively bill the customer and share the revenues among the many players in the game is growing increasingly important to the industry's success. This panel looks at all sides of the issue, from creating a single end-user billing interface, to common billing APIs for application developers, to security and authorization standards, to revenue reconciliation, sharing and settlement.

MODERATOR: **John Bunyan**, *SVP, Mobile Multimedia Services, AT&T Wireless Services*

SPEAKERS: **Jud Bowman**, *CEO, Pinpoint Networks, Inc.*
Mary Clark, *VP, Operations, CIBERNET*
Lisa Huetteman, *Director, Business Development, TSI*
Neil Philpott, *Director, Product Marketing, ADC*
Dennis Woronuk, *President, CEO & Co-founder, Wmode Inc.*

THURSDAY, OCTOBER 17
11:30 a.m. – 1:00 p.m.

Track I: Mobile Customers Customer Access Sands 205

Customer loyalty is important to any firm. Many wireless solutions are designed specifically to allow for enhanced customer interaction, essentially allowing customers to manage and personalize their own experience by

giving them more control over the relationship process. Besides increasing customer retention and goodwill, such services reduce customer relations costs and can even be used to attract new customers. Listen as service providers and those who have implemented wireless customer service solutions discuss the opportunities available through such applications.

MODERATOR: **Bill Menezes**,
Editor In Chief, Wireless Week & Wireless Internet Magazine

SPEAKERS: **Mike Fabbri**, *VP, Sales, Motient Corp.*
Maurice Marks, *CTO, Network & Service Providers Business Unit, Hewlett-Packard*

Track II: Enterprise Untethered Use Cases I Sands 105

A look at enterprise solutions implemented by real-world enterprise customers and their solution providers. The panel will detail how they designed and implemented their systems, and what it's done for them in terms of increased productivity and ROI.

MODERATOR: **Eugene Signorini**,
Sr. Analyst, Wireless/Mobile Enterprise & Commerce, The Yankee Group

SPEAKERS: **Howard Beader**,
Director, Product Marketing, SAP
Benjamin Hill, *Director, Wireless Solutions, Sapient Corp.*
Omar Javaid, *Chairman & CTO, Mobilicity*
John Lankes, *VP, Strategic Sales, @Road, Inc.*
Tony Sica, *VP, Intel Corp.*

Track III: Content Opportunities Hot Content Sands 102

What is the premium content that will generate new revenue streams for all players in the value chain? Which are the services that wireless subscribers will pay for; which will they expect for free? This session examines these questions and more in an effort to identify future killer

apps, including games, multimedia, imaging and music. The economic and business models needed to serve as a foundation for the profitable success of these services are also discussed.

MODERATOR: TBD

SPEAKERS: **Gonzague de Vallois**,
VP, Publishing, Gameloft Inc.
Anders Evju, *VP & GM, Digital Bridges*
Robin Nijor, *VP, LightSurf*
Paul Towler, *VP, Ztango, Inc.*
Avner Ronen, *AVP, Marketing, Comverse*

Track IV: Wireless Internet Landscape Money Talks Sands 202

This panel features several leading venture capitalists discussing where in wireless they are investing their money. From the importance of management, to wireless technology and infrastructure, to pure gut instinct, attendees at this session will learn what catches a venture capitalist's eye and checkbook, and how to take advantage.

MODERATOR: **Andrew Seybold**,
President, Outlook4Mobility

SPEAKERS: **Rajeev Chand**,
Sr. Equity Analyst, Wireless Technologies, Rutberg & Co.
Janice Roberts, *General Partner, Mayfield*
Richard Tong, *Partner, Ignition Partners*

THURSDAY, OCTOBER 17
2:30 p.m. – 4:00 p.m.

Track I: Mobile Customers Messaging Your Customer Sands 205

The messaging phenomenon born out of European and Asian teen frenzy has invaded American shores, and now is the time to take advantage of this immigration. While wireless e-mail has championed wireless

data in the enterprise, the opportunity presented by wireless messaging doesn't stop there. This session examines the powerful consumer-facing uses for wireless messaging. Against a backdrop of recently completed interoperability agreements among service providers to exchange inter-carrier messages, panelists describe the varying messaging technology options—such as multimedia messaging, presence, instant messaging, and alerts—available to the enterprise for getting the word out to their customers.

MODERATOR: **Jim Straight**, *VP, Wireless Data Products & Bus. Dev., Verizon*

SPEAKERS: **Simon Buckingham**,
CEO, Mobile Streams, Inc.
Craig Peddie, *GM, Lexicus Division, Motorola*
Michael Pousti, *Chairman & CEO, SMS.ac*
Mike Serbinis, *CTO, VP, Engineering, Critical Path*
Michael Wehrs, *Director, Technology & Standards, Microsoft*

Track II: Enterprise Untethered Use Cases II Sands 105

More solutions implemented by real-world enterprise customers and their solution providers. Hear from a different set of companies adopting enterprise solutions for different reasons, and how experiences differ. Panelists discuss how similar solutions might result in wholly different experiences based on realities that change from business to business.

MODERATOR: **Becky Diercks**,
Director, Wireless Research, In-Stat/MDR

SPEAKERS: **Lovina McMurchy**,
Director, New Ventures—Wireless Initiatives, Starbucks
Bruce Kantelis, *VP, Mobile Computing, McKesson Corp.*
Brian Keane, *President, Enterprise Solutions Div., Aether Systems*

Track III: Content Opportunities Wireless Internet Migration Sands 102

So your existing Web strategy is working and you want to expand its success into the wireless realm? Recent history shows this to be easier said than done. The wireless Internet space requires different tactics and strategies for success. This session features the dominant Internet players discussing the technological, business and marketing issues confronted when attempting to provide wireless access to existing Internet products and services.

MODERATOR: **Mark Desautels**,
VP, Wireless Internet Development, CTIA

SPEAKERS: **John Arnold**, *EVP, Wireless Strategic Planning, InfoSpace*
Rick Robinson, *VP, Creative Solutions, AOL Anywhere, America Online, Inc.*

Track IV: Wireless Internet Landscape Delivery Systems Sands 202

Wireless devices are only as powerful as the networks they access. Even the greatest wireless application is rendered useless if it isn't accessible—a concern echoed in almost every evaluation of wireless data solutions. This session examines the state of wireless networks today, including coverage, network quality, capacity, transmission speeds and testing, with a specific focus on data transmission capabilities.

MODERATOR: **Mick Mullagh**,
President & CEO, Telephia, Inc.

SPEAKERS: **Gary Barton**, *Business Dev. Manager, OSS Division, Agilent Technologies*
Roger Deeringer, *Market Manager—CDMA Data, Wireless Networks Group, Lucent Technologies*
Steve Livingston, *SVP, North American Sales & Worldwide Marketing, Bytemobile*
Nitin Shah, *EVP & GM, Business Development & Strategy, Arraycomm*
Dave Williams, *VP, Strategic Planning, Cingular Wireless*

Exhibitors

as of August 1, 2002

Company	Booth #	Company	Booth #
@Road	1941	Lynn Products, Inc.	2802
7 Layers Inc.	909	MAXRAD, Inc.	2039
724 Solutions, Inc.	2818	Medical Manager (WebMD)	2434
AdventNet, Inc.	915	Medical Records Institute	2228
Aeris.Net	2612	Microsoft Corp.	2000
Aether Systems	1207	MobiApps	2428
Agilent Technologies	806	Mobile Mark, Inc.	1930
Aircept	1021	Mobile Wireless Internet Forum	1826
Airvana	1612	M-Systems, Inc.	1928
ALLCOM Products Corp.	1519	M-tertainment & Gaming Pavilion	2214
Alpha Equipment Company	1122	Navigation Technologies	2132
Am-Beo	1821	NetNumber, Inc.	2618
American Appraisal Associates	2031	NobleStar/Defywire	910
American Roamer	2042	Numerex Technologies	1211
Anritsu Company	3024	Openwave	1200
Antenna Systems & Technology	1943	Orsus Solutions	1121
AnyData Corporation	2032	Padcom, Inc.	501
APRIVA	1112	Peak Wireless, Inc.	807
AT&T Wireless	1115	Pervagus, inc.	3025
Audiovox Communications Corporation	2014	Philips Digital Networks	2815
Autodesk Location Services	1000	Protura Wireless	1522
Axiom Navigation Inc.	1118	QUALCOMM, Inc.	1608
Berkeley Varitronics Systems, Inc.	2044	QUALCOMM, Inc.	1812
Broadbeam Corporation	1204	Radio Resource Magazine	1944
CelPlan Technologies	1421	RateIntegration	2221
Centurion Wireless Technologies, Inc.	1945	RCR Wireless News	2439
CIBERNET	2421	RealNetworks	704
Cingular Wireless	503	Remote Site & Equipment	1943
Citrix Systems	2810	Research In Motion	1406
Clarity LLC	809	San Diego Telecom Council	2904
CMG Wireless Data Solutions	1815	Scan Mobile	2214-G
Cold Fusion	1218	SchlumbergerSema	1418
Creative Application Technologies	507	Screaming Media	1012
CSI Wireless, Inc.	1215	Sentori, Inc.	1011
CTIA - WOW-COM	706	Sierra Wireless, Inc.	2609
Cushcraft Corp.	1926	Skybility	2239
Digital Bridges	2214F	SmartServ Online	1818
Electronics For Imaging	2800	Softalia	505
ESRI	2028	Software Business	1943
Etenna Corporation	2133	Solid Data Systems	2419
Express Products	1110	Sony Ericsson Mobile Communications	2214A
Federal Communications Commission	2621	Space Data Corporation	2034
Finisar	2043	Sprint PCS	504
Foresight	502	Starfish Software	2809
Funk Software	2805	Stellent, Inc.	1010
FutureDial, Inc.	1824	Sunview/Data911	714
GEMPLUS	2036	Symbol Technologies, Inc.	2808
General Dynamics	1019	SYS-CON Media	1218
GeoComm	2224	Taiwan Pavilion	1618
Geospatial Solutions	1518	Telcontar	2812
Global Wireless	2440	TeleAtlas	715
Global Wireless Education Consortium	705	Telephia	906
GPS World	1518	TestQuest, Inc.	1018
GTRAN, Inc.	2018	Transportation Communications LLC	1828
Hewlett-Packard	2403	TSI Telecommunications Services, Inc.	1832
Hexacto	2214-L	Universal Scientific Industrial Co. Ltd.	1721
HillCast Technologies, Inc.	1221	VeriSign Inc.	2618
iAnywhere Solutions, a Sybase Company	2615	Verizon Wireless	2206
IBM Corp.	1600	Verizon Wireless	500
Infinite Peripherals, Inc.	2139	Visionary Products Inc.	2519
Info Directions, Inc.	2418	Voxson	709
Informa Telecoms & Technology Magazine	2131	V-Star	2712
Intelligent Compression Technologies	2518	Wavecom, Inc.	2024
Interactive Intelligence	1924	Webcom	1943
Invertix Corporation	1605	Wildfire Communications, Inc.	1835
Jabra Corporation	1521	Wireless Business Technology	1218
Java Developer's Journal	1218	Wireless Developer	2224
Korean Pavilion	2007	Wireless Network News	1943
Kyocera Wireless Corporation	1004	Wireless Week	2136
Lightbridge, Inc.	2806	WMODE, Inc.	2021
Logica Mobile Networks	2218	XML Journal	1218
Lucent Technologies	2400	Zenith Infotech, Inc.	2804

CTIA WIRELESS I.T. & INTERNET 2002



Keynote Session



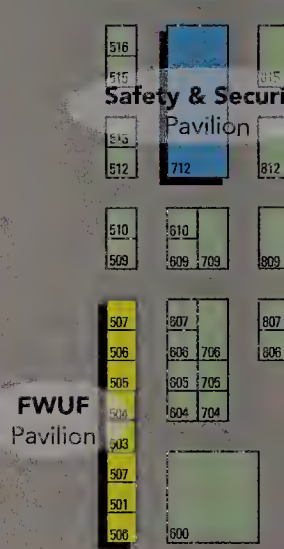
ENTRANCE



Meeting Room



Safety & Security Pavilion



FWUF Pavilion

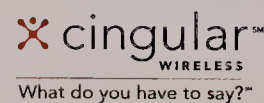
KEYNOTE WALKWAY

KEYNOTE WALKWAY



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CTIA thanks the following companies for providing coverage and infrastructure support for CTIA WIRELESS I.T. & INTERNET 2002:



The Exhibit Floor

Floorplan subject to change



Special Interest Pavilions

Safety & Security:

On the Road and in the Homeland Booth 712

In today's world, safety and security is on everyone's mind. In the office or at home, do you have a plan for protecting your data, transferring information from remote locations or communicating with others in an emergency situation? On the road, do you know how your company will monitor its fleet, track merchandise, insure delivery or simply enable drivers to navigate the nation's constantly changing roads? Visit the "Safety & Security: On the Road and in the Homeland" pavilion to answer these questions and more. Featuring the latest in GIS, Location Based Services and Telematics as well as future innovations in the area of Homeland Security.

M-ertainment & Gaming

Booth 2214



A Mobile Playground... wireless fun at your fingertips!

The mobile entertainment market is going to skyrocket in the next few years and the coolest technology out there will be at **CTIA WIRELESS I.T. & INTERNET 2002**. Don't miss the next hottest mobile trends for downloading music, movie trailers, cutting-edge video games, and much more! CTIA has created a convening place for those who develop mobile entertainment applications with those who can ultimately offer the technology to the public. This is sure to bring the kid out in everyone!

Mobile Healthcare

Booth 2228



Organized by the Medical Records Institute (MRI) and the Mobile Healthcare Alliance (MoHCA), the Healthcare Pavilion showcases mobile applications in healthcare. This section is for the person who is interested in the best practices and solutions specific to healthcare. It is in connection with the educational programs presented by MRI and MoHCA on implementing Mobile Healthcare Computing Devices (MHCDs) in hospitals, clinics and doctors' offices. For more information, see www.medrecinst.com/conferences/wireless/index.shtml. For exhibit information, call (617) 964 3923 or email carey@tepr.com.

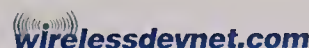
Taiwan

Booth 1618

Leading manufacturers of wireless application products from Taiwan will be showcasing their technologies at **CTIA WIRELESS I.T. & INTERNET 2002**. Don't miss the opportunity to meet developers of new wireless applications as well as the more traditional producers of repeaters, wireless networking equipment and cellular phone accessories. On hand will be decision-makers and technical support staff to assist visitors.

Wireless Developer

Booth 2224



The Wireless Developer Pavilion, hosted by the Wireless Developer Network, consists of leading wireless technology companies offering developer solutions and products including voice, location-based services, mobile Java, developer SDKs and wireless data.

Federal Wireless Users' Forum (FWUF) Booth 500

Korean

Booth 2007

CTIA WIRELESS I.T. & INTERNET 2002 will feature the largest and most comprehensive exhibit floor showcasing every component of an array of wireless data solutions.

Up-to-date info and online registration at

www.ctiashow.com

Co-located Conferences

CDMA2000 Wireless Internet Optimization: Optimization of CDMA2000 1x Networks

October 14-15
8:30 a.m. – 4:30 p.m.
Venetian Room 607

Presented by



This course is for the experienced telecommunications professional with a working knowledge of CDMA who is responsible for deploying, optimizing, and operating CDMA2000 1X networks. (Prerequisite: familiarity with IS-2000)

CDMA2000 Wireless Internet Optimization is presented by industry experts with experience troubleshooting and optimizing CDMA2000 wireless data networks world-wide. The 2-day course provides a solid background in network fundamentals necessary to offer data services and Internet access. Topics covered include Architecture and Protocols, Layering, the OSI stack and the IP Suite, IP networking fundamentals, Transport Protocols, Link Layer Addressing, and a review of Hubs, Bridges, Routers, and Gateways. Packet data services are a major focus and include IS-707A Packet Data Services, Protocol stacks, RLP, Simple and Mobile IP, QoS, Mobility Management, Dormancy, and Accounting. Building upon this foundation of knowledge, the course then describes and characterizes the parameters to best optimize packet data performance over CDMA2000 to maximize system throughput and minimize user latency. The course concludes with a key session that lists guidelines and specific tests for testing and troubleshooting a CDMA2000 wireless network to enable the system operator to verify optimal network performance.

How to Register

Fee: \$995 US per attendee.

For further information, please email us at cdmau@qualcomm.com.

On-line
<http://www.qualcomm.com/cdma/university/schedule.html>

Wireless Data University

Tuesday, October 15
9:00 a.m. – 5:00 p.m.
Venetian Room 502

Presented by

Andrew Seybold's
OUTLOOK



Wireless Data University – with another completely updated agenda – is a unique day-long event within the CTIA conference. For six years, WDU has been providing thousands of attendees with a basic foundation combined with sophisticated analysis about the wireless data industry.

WDU has two distinct segments: three concurrent morning tracks and afternoon panels. WDU registrants may attend any of the sessions. The morning tracks are:

Track 1

The Basics of Wireless Data

>> **Andy Seybold**

Track 2

The International Business Dynamics of 802.11 and Cellular

>> **Alan Reiter**

Track 3

Wireless Networks, Applications and Services

>> **Barney Dewey**

After lunch, attendees will gather for a combined afternoon session made up of three panels where industry experts will examine crucial marketplace issues. All attendees attend the following panel sessions:

Roundtable 1

Making Money in Wireless Entertainment: Games, Music, and Beyond

>> Moderator: **Alan Reiter**

Roundtable 2

Systems Integrators:
Wireless Data Solutions

>> Moderators: **Andy Seybold & Barney Dewey**

Roundtable 3

Wi-Fi and Wide Area Wireless:
Complementary Technologies

>> Moderators: **Andy Seybold & Barney Dewey**

Slide presentations from all tracks will be included in the WDU binder.

Wireless Developer Forum

Tuesday, October 15
9:00 a.m. – 6:00 p.m.
Sands Room 205

Presented by:



The Wireless Developer Network (www.wirelessdevnet.com) and Ericsson Mobility World (www.ericsson.com/mobilityworld) are proud to present this seminar series dedicated to wireless developers and IT professionals. In joining forces and combining the fifth installment of the WDN TechDay series and the annual Ericsson Mobility World Developer Conference, we will be offering even more valuable developer technical sessions to choose from. This technology-focused seminar will be emphasizing knowledge transfer and application development tools and techniques in areas that are of greatest interest to the mobile developer community today.

Technical sessions presented by Ericsson, Sony Ericsson, and many other leading industry experts will explore issues facing the mobile developer in various areas and provide the tools and hands-on instruction developers need to turn their ideas into reality. Topics ranging from Location-Based Services (LBS), Multimedia Messaging (MMS), Mobile Java, SMS, VoiceXML, Wi-Fi, SDKs, and many others will be examined by developers from leading and innovative companies. The afternoon portion of the seminar will feature breakout sessions which will allow attendees to choose whether to attend an Ericsson focused developer presentation or one presented by other developers.

This seminar offers additional value to the wireless industry's largest technical trade show by providing a forum for the wireless development audience. For any developer looking to build wireless applications – this event is a must.

Wireless Developer Forum Highlights:

- >> Keynote – "The Value Proposition: It Starts with the Developer" **Sandeep Chennakeshu**, CTO, Sony Ericsson Mobile Communications
- >> Application Developer Panel – "Challenges, Successes, and Bombs!"
- >> Presentation – "J2ME Application Development Using the Sony Ericsson SDK"
- >> Developer Workshop – "Developing MMS Applications"
- >> Presentation – "The Parlay API: Growth Opportunities for Developers"
- >> Operator Panel – "Mobile Applications: What Works, What Doesn't, and What They're Buying?"

& Special Interest Seminars

- >> Presentation – "Development and Design Issues for Both the High and Low Ends of the Wireless Market"
- >> Presentation – "Building Carrier-Grade Voice Apps using VoiceXML"
- >> Presentation – "Driving Mobile Application Use: Techniques for Creating and Demonstrating Wireless Applications"
- >> Presentation – "Fast Lane to Location-Based Applications for Wireless"
- >> Plus many more...

BONUS!

Registration in this seminar includes an invitation to the Wireless Developer Forum cocktail social to be held immediately after the event. Each attendee who joins us at the party will be given the chance to win a new Sony Ericsson T68i MMS-enabled phone with color screen (a \$700 value) in a random raffle drawing.

For updated agenda and presentation title/speaker information, please visit:
www.wirelessdevnet.com/wirelessit2002

WLAN Applications & Demonstration Conference

Presented by



Tuesday, October 15
9:00 a.m. – 6:00 p.m.
Sands Room 103

The WLAN Applications & Demonstration Conference brings together for the first time a complete package of the new and exciting advances in Wireless LANs and the contribution they have made today, and will make in the future.

IT executives and service providers will attend to learn about the incredible new applications being unleashed by the latest technology and standards in the Wireless LAN marketplace. The WLAN Applications & Demonstration Conference will showcase live demonstrations and educational sessions by leading companies explaining their vision of Wireless LANs in the home, in the office, and on the move.

Attend the WLAN Applications & Demonstration Conference to gain a fundamental understanding of the technologies involved in Wireless LANs, how they can be used and how they will integrate into other wireless futures such as 3G.

Topics covered include:

- >> Standards demystified
- >> Integrating platforms: Bluetooth, 802.11, HomeRF and 3G

- >> Novel WiFi Deployments: Free Access, Hot Spots, Neighborhood Cooperatives
- >> Integrated security – LAN and Wireless LAN.
- >> Hot Spots and the Mobile Professional - Network to Network, Coffee House to Company Headquarters
- >> Practical deployment and spectrum management for the IT professional

Federal Wireless Users' Forum Conference

October 16-18
8:00 a.m. – 5:00 p.m.
Venetian Room 506

Who Should Attend

The 18th workshop of the Federal Wireless Users' Forum will provide an opportunity for dialogue between government wireless users, planners and industry experts.

What You Will Learn

The objectives of the FWUF are:

- >> to educate Federal Government users about wireless telecommunications;
- >> to identify the telecommunication needs of Federal Government users;
- >> to facilitate information exchange with other users groups, standards organizations, manufacturers, and service providers to ensure that Government user needs are met;
- >> to support the interoperability of emerging wireless services and equipment through increased participation in the formulation of Federal policy, support of standardization efforts, and other appropriate activities.

How to Register

Registration Deadline: October 1, 2002

Registration Fee:

\$200 – FWUF Pavilion Exhibitors \$500

On-line

www.nist.gov/fwuf

Conference Code: **FAL88070**

Mobile Entertainment Summit

Presented by

Wednesday, October 16
8:30 a.m. – 6:00 p.m.
Venetian Room 503

iHollywoodForum
the business of interactive entertainment

MobileTechForum
the business of mobile technology

With recent predictions, mobile entertainment is exploding into the next multi-billion dollar industry. Learn how your business can make the right strategic decisions to profit in the marketplace.

If your business involves wireless entertainment or games, you can't afford to miss this CTIA-exclusive gathering of the industry's key players!

Topics include:

games, multimedia, downloadable ring tones, devices, location-based entertainment, icons, messaging, Hollywood, making money, platforms, technology, rich media, video, imaging, music, animation, community building, licensing, branding, digital rights, marketing and forming strategic partnerships. Network and make deals with leading carriers, operators, game developers, game publishers, distributors, device makers, handset manufacturers, application developers, content creators, Hollywood studios, and record labels never before gathered in one place featuring over 40 speakers and demonstrations.

Learn about the opportunities for creating branded content and licensing deals, savvy marketing strategies, and forming strategic alliances and partnerships.

Companies Speaking Include:

Adversoft	Nokia
Airborne Entertainment	Nuvo Studios
AT&T Wireless	Openwave
Cash-U	Palm
Chasma	QUALCOMM
Cybird	Research in Motion
Danger	Sega.com
Digital Bridges	Sony Entertainment
Disney Interactive	& Sony Pictures
Dwango	SonyEricsson Mobile
EMI Recorded Music	Sprint PCS
Emblaze Systems	Texas Instruments
Eyematic	THQ Wireless
Gameloft	UPOC
Intel	Verizon
Int'l Disney Internet Group	Walt Disney Internet Group
Mobile Entertainment Forum	Wildseed
Mobileway	Wireless Gaming Review
Motorola	WirelessDeveloper.com
Moviso	Zelos Group
nGame	Zingy

How to Register

On-line

www.MobileTechForum.com

Before 9/6/02: \$245

After 9/6/02: \$295

Onsite registration: \$325

Questions? Call **Zahava Stroud** at 310-815-3884
e-mail: info@MobileTechForum.com

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- >> **Robert DeMarco**, Practice Principal, HP Services, The Hewlett-Packard Company
- >> **Michael Mittleman**, Deputy CIO, New York State Department of Health
- >> **Karen Kelly**, Program Manager, Healthcare, Palm
- >> **Jeffrey White**, Cardiovascular Biomedical Engineer, Miami Children's Hospital
- >> **Roger Beharry Lall**, Manager Industry Solutions, Research in Motion
- >> **Rudy Rai, MD**, Director, Clinical Effectiveness, Johns Hopkins Medical Institutions
- >> **Jeneane A. Brian, RN, BSN, MBA**, President/CEO, VNA Home Health Systems
- >> **Lance Baldo, MD**, Chief Medical Officer, Co-founder, MedAptus
- >> **Mark Peterson**, Manager, Information Systems, Dedham Medical Associates
- >> **Roberto Ruggeri**, Healthcare Technical Strategist, Microsoft Industry Solutions Group

How to Register

Registration through September 9, 2002 - \$995.
After September 9 and on site - \$1,295

Call 617-964-3923 x232

On-line
www.medrecinst.com/mobile

Presented by



Global Wireless Education Consortium

Wednesday, October 16
1:00 p.m. - 5:00 p.m.
Venetian Room 605

If your workforce includes
engineers, technicians, or
other wireless specialists, this session is for you!

This Wednesday afternoon session hosted by the Global Wireless Education Consortium (GWEC) will focus on the hiring practices of the wireless industry and the knowledge expectations of new hires. As wireless technology permeates our lives, the need for qualified wireless specialists is increasingly critical to the economic welfare of the industry. What skills do wireless companies look for in new employees? What are the educational criteria for hiring? How are colleges and universities responding to the stated needs of the industry? Can wireless education in schools reduce corporate training expenses? How do work/student visa restrictions affect higher education and the industry? What challenges lie ahead? This open session will address these questions and examine the academic requirements for the wireless workforce of the 21st century.

To apply for speaking opportunities, please
send a brief (1-2 paragraph) description of your
topic to info@gwec.org.

Note: On Thursday and Friday, October 17-18,
faculty from GWEC Education Partner institutions
will gather for an intensive workshop designed to
evaluate and assess the GWEC Wireless
Curriculum. The 46 curriculum modules, devel-
oped in collaboration with industry and academia,
is made available to GWEC Education Partners for
educational use and to industry Members for
internal training purposes.

Persons from GWEC member companies and
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registration is \$50 for all others.

How to Register

On-line
www.gwec.org

Mail
GWEC
1501 Lee Highway, Suite 110
Arlington, VA 22209
703-351-6982

Presented by



Oppenheimer Business Valuation & Sale of Business Seminar

Friday, October 18
11:00 a.m. - 3:00 p.m.

Presented by

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- >> How to structure a sale which results in a favorable tax impact to the owners
- >> How and when to announce the sale to employees
- >> How to negotiate an increase in price on the basis of favorable deal structuring
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How to Register

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October 16-18, 2002
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ZIP

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hotels for consideration.

☐ **Hospitality Suite** [If checked, CTIA will contact you]

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Reservations will not be processed or confirmed
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Exp. Date

Signature (charge authorization)

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firms that I have read, I understand, I agree and
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Cancellation Policy below.

4. POLICIES

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- >> You will receive hotel confirmation from the
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Housing Desk within 5 business days of
receipt of your completed housing form.

Q U I Z

Big Talk

Despite the economic slump, five of the biggest companies in America were talking big about IT in their 2001 annual reports. Take this quiz, and match the boast to the company that made it. (One of the boasts comes from a 2000 annual report.) Normally, if you got them all right, we'd give you a prize, but, hey, we're in an economic slump too. Answers below.

THE BOASTERS

A. Wal-Mart Stores **B.** Citigroup **C.** Enron
D. General Electric **E.** IBM

THE BOASTS

1. We have invested \$10 billion in information technology since 1998 to make digitization a vital part of the company.
2. By the end of the year, our Web-based system had executed 548,000 transactions with a notional value of \$336 billion, and it is now the world's largest Web-based e-commerce system.
3. Most companies attempt one major reengineering project at a time. In 1994, we launched 11, from the way we manage internal information systems to the way we develop products and serve customers.
4. We use the Internet to provide expanded services to our customers. In one line of business, approximately 70 percent, or \$1 billion, was generated and processed online.
5. Technology and logistics are among the company's most innovative areas. Our computer system is the most powerful in the corporate world—only the U.S. government has a larger computer network.

ANSWERS: 1.D 2.C (2000 REPORT) 3.E 4.B 5.A

E - B O O K S

E-Pilogue for E-Publishing

TWO YEARS AGO, e-book evangelists were warning traditional book publishers that they'd better get on the e-book wagon fast, since the next two years were going to make or break them (see "The Next Chapter" at www.cio.com/printlinks). It was a heady time: Accenture had confidently predicted that by 2005 digital books could account for one of every 10 books sold, and publishers were rushing to assemble digital book divisions.

Well, turn the page. In 2001, the going got tough for e-publishing. By December, AOL Time Warner had closed its iPublish.com electronic publishing division. (Now the company outsources the distribution of its e-books.) By May 2002, one Jupiter Media Metrix analyst, once an e-book protagonist, said the whole thing was a dumb idea.

So this story is a tragedy, right? Not so fast, Shakespeare.

For one thing, Adobe Systems and Microsoft, which dominate the market for making software that supports e-books, aren't

giving up their development efforts. Second, while it's true that Microsoft pulled its funding of a high profile e-book award at the world-famous Frankfurt Book Fair in April 2002, Redmond turned right around and unveiled the International eBook Association to promote e-books (and present its own set of awards).

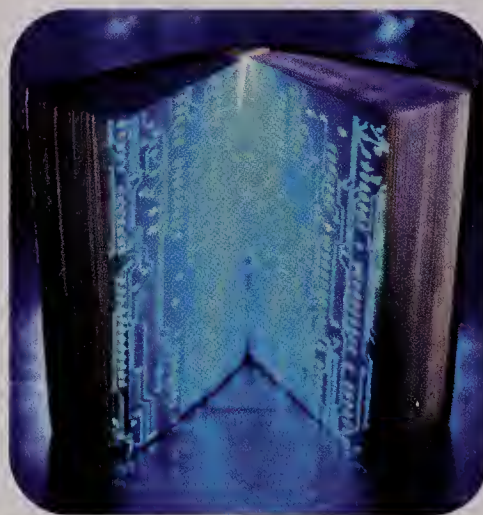
And then there's the Old Man and the E: Viacom's Simon & Schuster book division said in May that it

would make all 23 of its Ernest Hemingway titles available as e-books, along with approximately 1,200 other e-book titles.

Despite the tenacity of promoters, the future is uncertain. For e-books to succeed, better-quality, more user-friendly and less expensive reading devices are essential. Competing software formats and other issues, such as secure transmission, copyright and fair use, need to be resolved. Reader resistance may also prove too strong.

The fragmented nature of the book market may make it impossible for e-books to become anything more than a niche product. After all, you can't find an e-book copy of Margaret Mitchell's *Gone with the Wind* on Amazon.com. But, as Scarlett O'Hara would say, "Tomorrow is another day."

—Carol Zarrow



Here's a sign of Microsoft's
new pricing structure.



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The signs are all there. Microsoft wants more money from you. And they'll do whatever it takes to get it. Because one thing's for sure, their new licensing initiative only benefits their bottom line—and not yours. Of course, if you want to move your business in a direction where you stay in control of your software costs, then head straight to Novell. With Novell® one Net Business Solutions, you can solve your most complex business challenges while avoiding the detours and unexpected technology costs that can slow down your growing business. Learn more now by downloading your FREE white paper, "What Microsoft doesn't want you to know," at www.novell.com/toll

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Peer to Peer

Field-Tested Ideas from CIOs for CIOs

His Side of the Mattress

CIO Steve Williams had to figure out a way to save Mattress Giant's ERP project. But first he had to figure out the company's business.

BY STEVE WILLIAMS

A YEAR AGO, if you were in your mid-30s, drove a domestic car, and made between \$30,000 and \$40,000 per year, chances are Mattress Giant was trying to get your attention. However, if you fit that profile, you probably weren't interested in what Mattress Giant had to say. That's because you weren't a customer of the Addison, Texas-based specialty bedding retailer. But the company didn't know that. For years, Mattress Giant annually poured more than \$2 million (or 10 percent of its annual revenue) into advertising to a demographic that simply wasn't listening. And what would you guess was the information source that drove this misguided strategy? Siebel? Oracle? SAP?

None of the above. It was...gut feel.

As the new CIO for Mattress Giant, I was in a jam. Just prior to my coming on board, the company's CEO had halted the implementation of an integrated point-of-sale (POS) and ERP system 35 percent of the way through the project. The sales force had complained that the integrated POS and inventory/distribution system was too complicated to use. They also claimed it was costing the company sales volume. In the meantime, Mattress Giant was flying blind, without any real business



metrics or customer information. And although the CEO's concerns were well-placed, I felt that it was only a matter of time before the absence of such data would choke off the company's growth.

Somehow, I had to convince the CEO to change his mind.

Learning the Language of Springs and Coils

So where do you start when you need the blessing and trust of the CEO? Particularly one who, early in the process, informed me that I was asking him to put his whole company at risk for the sake of a computer system. Earlier in my career I would have begun with a well-researched technology plan, accompanied by a strong ROI analysis, a thorough project plan and maybe even a colorful PowerPoint presentation. But this time I chose a different path.

I turned off my computer, cancelled my meetings and got elbow-deep in the business. With the blessing of the executive

ILLUSTRATION BY MICHAEL KLEIN



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Peer to Peer

vice president for sales, I visited our retail stores, talked to the salespeople, watched the sales process on the floor and learned the Mattress Giant language of sales. I even tried my hand at selling mattresses: I heard people talk about the IT department and what they said wasn't pretty. I also went to our distribution centers, studied the delivery procedures, loaded delivery trucks and participated in the existing physical inventory process. I added myself to the distribution list for customer service e-mail to learn what our customers had to say about us. I lived and breathed the company's operation for more than a month.

In today's enlightened IT world, "knowing the business" seems like a cliché, but in reality, its importance cannot be overstated. Not only was I able to get a crystal clear view of what the issues were with the existing process and what the problems had been with the ERP implementation, but I was also able to build more credibility with the CEO than I could have imagined. I could now speak with him in his own language, and ensure that my future memos, e-mails and reports were not only read but understood. I became an informed adviser. But this was no guarantee

I visited our retail stores, talked to the salespeople, watched the sales process on the floor and learned the Mattress Giant language of sales.

that my project would get approved. This was only step one.

My next journey would take me to the CFO's office. It was important to understand the mechanics of expense and project approval. I worked late into the evenings with the CFO creating a real case for the return on technology spending. We focused on finding the immediate hard-cost reductions and business benefits that made the ROI for the ERP/POS system work. As a result, I had a coauthor for my IT proposals. In fact, they were no longer IT proposals at all; they were business proposals that involved technology expenditures. In the end, my CFO became a strong ally in the boardroom.

Only now could I begin pursuing the classical IT management initiatives. I met with the ERP vendor, GERS Retail Systems, to ensure it took ownership for the project's success. (Something it should have been asked to do two years ago.) GERS quickly realized the value of lending consulting support at near-zero cost. It knew that a satisfied customer meant continued maintenance fees and license purchases.

I also had to reengineer the IT function itself. I focused on building strong levels of technical support, a rejuvenated spirit of excellence in internal customer service and most important, a campaign to improve the image of IT in the company. To build cross-functional support, I took an indirect path. I made it

a religion to always remind my fellow executives gently that anytime they used information based on ERP system data, their decision would not have been possible without the system. (And, by the way, wouldn't it be great if 100 percent of our stores were online, as opposed to the current 35 percent installed base.)

We also prepared many business metric reports, always with the caveat that they represented only part of the company's performance. For example, we partnered with our loss prevention department to identify breaches in inventory security. As a result, we were able to recover thousands of dollars in stolen merchandise and manual inventory errors—but only from stores connected to the ERP/POS system.

With all this ammunition, I finally presented my case to the CEO. It didn't take long for him to recognize the potential value of a fully implemented ERP/POS system. He began to see that not implementing the system would be a greater gamble than implementing it. My partnerships with the CFO and the executive vice president of sales paid off as they backed me. The CEO embraced the project and became its biggest cheerleader.

Within nine months, we had the system up and running. The CEO bragged about its huge success. The CFO felt that he had made one of the best financial decisions of his career. And the IT department's image was transformed from technology dictator to solutions provider.

With our new ability to capture a holistic picture of our customers, we found out—surprise!—that they are predominantly female, approximately 43 years old, with a household income in excess of \$75,000. Consequently, you are now much more likely to see our ads during *Friends* than *Monday Night Football*. We use focus groups to better understand our customers (whom we now know), and we spend our advertising dollars more intelligently. The entire personality of the company has changed. Our salespeople now protest only if their POS system goes down.

The whole experience reminds me of an article I read in the *Harvard Business Review* by Abraham Zaleznik, which contends that one key difference between a manager and a leader is the leader's ability to change the way people think. I agree. I believe that this principle, executed in a nonthreatening manner, is a critical skill for CIOs as they interact with others in the company.

Today, Mattress Giant is definitely a company that is thinking differently. The proof is in the pudding: It is projected to set record-breaking sales this year. **CIO**

Got any ideas you'd like to share? Let Senior Editor Alison Bass know at abass@cio.com. Steve Williams is senior vice president and CIO of Mattress Giant, a specialty bedding retailer in Addison, Texas. You can e-mail him at srwilliams@mattressgiant.com.



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Take It to the Next Level

Challenges for CIOs who think they've done it all

BY CHRISTOPHER HOENIG

MOST OF THE CIOs I meet are overachievers. They don't stay satisfied with any situation long. Once they've worked through the alignment challenge, the architecture and systems development portfolio, and the other fundamentals facing today's CIOs, they often yearn for something more. The best leaders are usually gazing over the horizon at that next adventure.

Over the years, I've had hundreds of conversations with CIOs looking for a way to take their work to the next level. I've heard a lot of good ideas—and recommended some—for CIOs who feel they've taken their job as far as possible.

There are three ways to think about what you could do next: in your current position, outside your job but still at your current company, and somewhere else. Which route is right for you depends on your circumstances and your appetite for risk.

At Your Job

Within your current job you have the advantage of an existing platform from which to explore, but you'll have to be especially aggressive to find that feeling of adventure. So if you haven't done one of the following already, give it a try.



Prove yourself. You may think you've got the job nailed, but can you prove it to the world? Do you have ISO (International Organization for Standardization) certifications? Have you won a Baldrige or Deming award? Have you won a CIO magazine Enterprise Value Award? Pick the one that's right for your organization and put yourself to the test.

Invent your future. Make it your goal to develop a patented technology that underpins your business strategy. Choose R&D areas that put you on the bleeding edge. Scour the world for new technology your organization can use.

Tell everyone how you did it. If you've really made it, then write an article or even a book about it. Develop a training course internally or at a college or university. Get on the speaking tour and tell your story.

Stack yourself up against the best. Arrange benchmarking visits with five top CIOs. Then judge whether you really have

ILLUSTRATION BY DAN PICASSO



"We need global scalability without overspending."

"I said 24x7x365. NOT 22 or 23. 24!"

"We're losing our competitive edge—what's IT going to do about it?"

Don't take the heat for infrastructure limitations

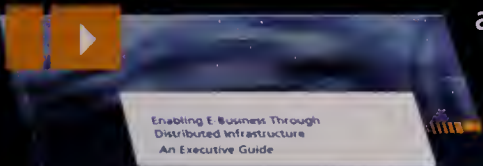
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Total Leadership

done it all. Chances are you'll find some areas in which you can do better.

At Your Company

If you step beyond the CIO job but stay in your current company, you have a stable foundation but also some pretty big risks and high degree-of-difficulty challenges. These will immediately take you outside your comfort zone. Are you up for the following tests?

Lead a major companywide effort. Take charge of a major strategy project, an award competition, a pervasive problem or a little-noticed opportunity, and use it to gain notice throughout the company. One CIO I know started an entirely new business line based on new software technology his team had developed.

Cut a deal with the CEO that allows you to run a line business unit for a year, with a discussion taking place at the end about whether you'll stay.

Conquer more territory. If your portfolio doesn't contain information, technology, knowledge and systems, work to get control over them and put yourself at the top of the heap. I know a CIO at one of Wall Street's biggest financial services companies who convinced an incoming CEO to give him control of all those functions. Then he slowly and strategically gave them away as he built his business leadership profile at the organization.

Run a line of business. Cut a deal with the CEO that allows you to run a line business unit for a year, with a discussion taking place at the end about whether you'll stay. If after six months you find the experience to your liking, identify your replacement and make the switch a *fait accompli*.

Move up the ladder another rung. If you're a business-unit CIO, set your sights on the corporate job. You might even find that the person in that position is anxious to develop a replacement.

Get on the CEO track. Meet with the board members and the current CEO and tell them you want to get on the track for the top spot, and find out what the requirements will be. At the same time, work with headhunters and with other CIOs who have made the transition to get their take. You may not make it, but you'll learn a lot along the way.

Going Elsewhere

There are some fabulous adventures to be had by just picking up stakes and getting on the road. Every one of the following I've seen done with failure and success—but never without excitement, learning and seasoning.

Trade up. Use your peer network and executive search companies to put you in the running for the CIO job at a bigger, better company, with challenges that are massive compared with yours. Just be sure it's not more of the same.

Turn the tables. Develop a limited partner relationship with a venture capital fund and help it review technologies. Invest yourself, if you can, and then help grow the companies as well. Few things are more challenging or more rewarding.

Do it yourself. Some of you will not be able to resist the idea of your own startup. It's high risk but high return, and nothing else will test your limits as well. As one investor said to me, "For a new business to fail, any one of 10,000 things could go wrong. For it to succeed, they all have to go right."

Serve your country. Some of the most demanding CIO positions in the world are now being recruited. Nearly all of those organizations are looking for corporate talent with a track record. You might be able to take only a year or two, given the cut in salary, but you could contribute to solving some of our country's greatest problems.

Save the world. Nonprofits (also known as nongovernmental organizations or NGOs) come in all flavors, sizes and shapes, from the masterfully run nature conservancies to the Mom-and-Pop utopians. Somewhere in this large sector there may be an organization that needs you and fits some ideals you've been dying to satisfy—just so you can tell your kids you did something special.

The bottom line is that if you're bored or feel you've reached your limit, there are lots of options. Get out and challenge yourself by talking through these ideas with colleagues and new acquaintances outside your network.

Take your time and think carefully about how a move will contribute to the growth of your leadership capabilities. It's worthwhile to put together a kitchen cabinet of five to seven interested people willing to be held accountable for watching you and helping you through a big challenge.

Most importantly, get your heart, mind, soul and spouse aligned on whatever you try to do. If any of those get significantly out of balance, your big adventure can turn into a big disaster much earlier than you think. **CIO**

What other options have worked for you? Let us know at leadership@cio.com. Christopher Hoenig has been an entrepreneur (CEO of Exolve), consultant (McKinsey & Co.) and inventor, and is the author of *The Problem Solving Journey: Your Guide for Making Decisions and Getting Results*. He is now director of strategic issues for the General Accounting Office.



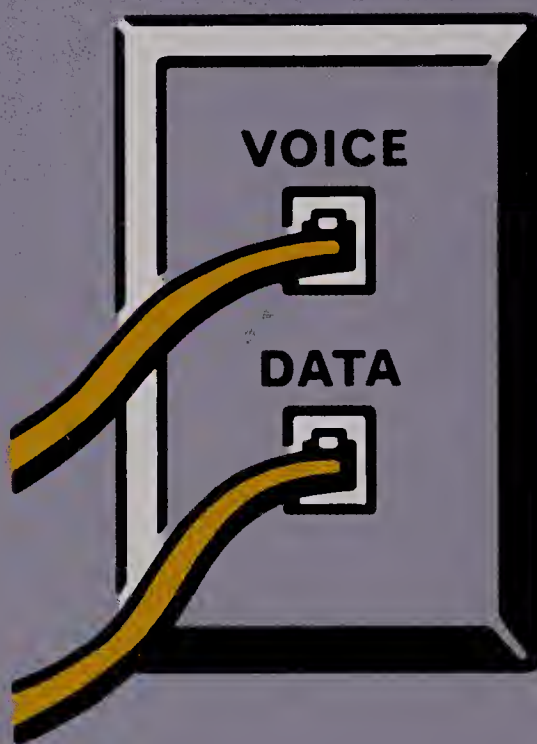
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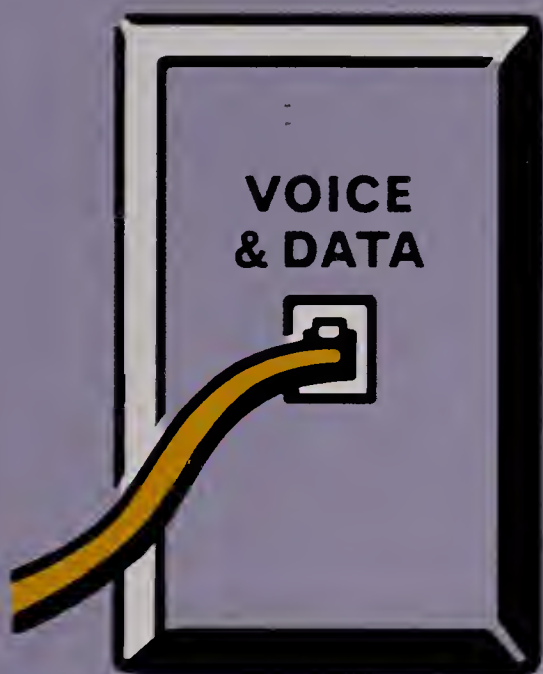


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DAVID DREW USED TO HAVE HIS OWN SUPERGROUP for IT decision making at 3M: the Information Systems Steering Committee. He had all six business division chiefs in there, along with the top functional leaders, meeting together six times a year to do nothing but jam on IT strategy, endorse IT projects of more than \$1 million and prioritize IT resources.

It was great while it lasted. In a company of strong business units—each focused on their own wants and needs—the committee was Drew's base for creating consensus for a unified IT strategy. But when W. James McNerney, the company's new CEO, took over in January 2001, he broke up Drew's group. And the business unit executives didn't protest. They already had to prioritize IT resources for their own unit; they didn't want to do it at the corporate level too.

"Our company is big and complex, and the group members didn't feel they understood the issues in all

The Powers That Should Be

Reader ROI

- ▶ How governance must adapt to your enterprise's organizational structure
- ▶ Why education is an important part of governance
- ▶ Understand why governance mechanisms should include an appeals process

IT decisions have to reflect the goals of the business and engage the attention of the business, often without the participation or even the interest of the business. Sound hard? It is. But here's what you can do to make it easier.

BY CHRISTOPHER KOCH



David Drew, 3M's vice president of IT, would prefer to have IT decisions made at the highest business level. But what he wants and what he can get are two different things.

the different units well enough," explains Drew, who is vice president of IT for St. Paul, Minn.-based 3M.

But Drew can't conceal his disappointment. "The corporate IT prioritization process was moved back to IT, and I would really rather have it at the highest business level," he laments.

WHY I.T. IS NOT LIKE A SHOPPING CART

Well, what CIO wouldn't want IT decisions made "at the highest business level"? For years, management gurus and the IT media have pushed for committees like Drew's late-lamented supergroup as the solution to the age-old problem of business-IT alignment. If a CIO could just get all the top honchos in the company meeting regularly to talk about IT, the thinking went, all his troubles would be over.

Unfortunately, this ideal of good IT governance is more often philosophical than practical. Even though big companies are now spending more than 50 percent of their capital investment dollars on IT (according to Gartner), few have a supergroup to guide their IT strategies. Most top executives still regard IT as a shopping cart full of hardware, apps and systems, and the extent of their involvement

is to say, "We'll take that one and that one but not that one."

That approach leads to flavor-of-the-month technology spending. Executives buy what they think they need to accomplish the short-term goals of their unit. Corporate strategy? Pie in the sky. Technology and business process standards? What's that got to do with third-quarter revenue?

If they are ever to rid themselves of the IT-shopping-cart mentality, CIOs must create something better: a governance structure that

1. keeps IT and the business jointly accountable for linking technology to the most important business strategies of the company, and
2. produces IT decisions that benefit the entire company and not just a part of it.

GOVERNANCE (NOT GOVERNANCE)

Understanding governance is easiest if first you understand what it isn't: It isn't management. Management is the decisions you make; governance is the structure for making them. Without good governance, you won't get good decisions consistently, no matter how wise or shrewd you are. The executive IT committee is the most powerful tool companies have to steer IT decision making at all

levels, but it can't be the only mechanism you have.

The two main components of governance are

1. the decision-making mechanisms you create, whether committees and review boards or written policies, and
2. the assignment of decision-making authority and accountability.

IT governance drives decisions in three main areas: IT strategy, and investment in IT projects and IT architecture. (See "The Power of Architecture," Page 52.)

The big challenge in IT governance, as 3M's Drew discovered, is that businesspeople view all IT as local unless the governance structure forces them to think otherwise. CIOs have to build governance systems that fulfill the strategic business goals of every part of the company while somehow imposing standards for the safest, lowest-cost use of technology across the entire enterprise.

A tall order for sure.

BEGINNING GOVERNANCE

CIOs can begin attacking the problem by examining the different pieces of IT governance they already have. Chances are, they aren't very well linked, says Peter Weill, director of the MIT Sloan School Center for Information Systems Research in Cambridge, Mass. "The use of IT in companies has become mature, but IT governance hasn't caught up," he says. "Most governance mechanisms are

The architecture piece of governance is critical because "we need to provide global consistency," says Mike Webb, Flextronics' senior VP of IT.

created to solve specific problems, like IT investment or architecture, but little thought is given to how they work together.”

Here's how the failure to link governance mechanisms hurts your company: A business unit wants to buy 10 PCs, and the business unit investment committee gives the go-ahead. Meanwhile, your IT architecture board (or architecture policy) says you have to buy ThinkPads. If those mechanisms—the business unit investment committee and the IT architecture board—are not linked, the company will end up with 10 different business units with 10 different brands of PCs running 10 different flavors of software, and you'll need at least 10 different guys on the help desk to service them. You might as well not have a corporate IT architecture at all for all the good it's doing you.

But not only must the governance mechanisms be linked functionally, they must be linked philosophically, says Weill. The different governance structures should not have conflicting goals that drive different types of behavior—such as linking a free-wheeling IT purchasing process to a rigid corporate architecture. If businesspeople are free to buy whatever PC they want, they will be resistant if IT then wants to control the software they can put on those machines. In effect, the two governance mechanisms are sending two different messages.

The messages that governance mechanisms send need to be consistent not only with each other but with the prevailing business strategy. So if the CEO is on an acquisition binge and wants to grow the company as fast as possible, IT may need to relax its governance structures to let decisions happen more quickly and with fewer qualifications. Conversely, when the CEO calls for cost reductions, CIOs may need to add a few layers of new IT governance to control spending and better enforce standards and architecture.

GOVERNANCE FROM THE BOTTOM UP:

When You Have Multiple Business Units

Of course, in the real world, companies—especially big ones with multiple business units—rarely have consistent business strategies. At 3M, for example, there are six market centers and 45 units, all with different strategies and market conditions. Drew needs to tie them all together with a single governance structure that serves the unique needs of each business while somehow maintaining consistency across the units and building support for a unified IT strategy across the company.

To do that, Drew has developed a governance structure that promotes the IT goals of 3M as a whole—standardization, cost savings and ROI—at the functional and business unit levels of the company.

Drew's governance structure starts at the bottom, at the business process level. Each of the six business divisions must keep a running list of “e-productivity” projects, which identify a specific busi-

ness process (such as order management or customer service) whose cost, quality and speed can be improved by IT. Leaders in the business units choose the projects and champion them, with IT in a supporting role. Each business division has a quarterly cost-reduction dollar target, and the projects are reviewed to see if the goals are being met. If they aren't, the business unit leadership has to explain itself to the top executives. That pushes the units to become more accountable for IT projects and to devote the resources necessary to

When the CEO calls for cost reductions, CIOs may need to add a few layers of new IT governance to control spending and better enforce standards and architecture.

help Drew's staff get the job done. Of course, Drew also measures his own staff on its ability to drive those projects to success. If the projects look like they might be transferrable across more than one business unit, they become “Super E's” and get bumped up to the corporate level.

The governance mechanism that Drew uses to keep these projects on track and in line with 3M's corporate goals for IT is the enterprise architecture, the CIO's secret weapon. Each e-productivity project must adhere to a list of common applications, hardware and programming languages. In this way, Drew is gradually pushing the different divisions toward a common architecture without having to issue a fiat from above.

He calls the architecture “embedded governance” because it's built into the projects and drives the technology decisions that benefit 3M as a whole, not just the individual business units.

GOVERNANCE FROM THE TOP DOWN:

When Your Leaders Know What They Want

Governance structures that drive hard at the process level gain their power from clear IT strategies at the top. Without guidance from senior executives, process-level projects have a tendency to multiply or become neglected and unfocused—or, worst of all, simply irrelevant.

“The single most important IT governance decision you can make is getting senior management to identify three or four or five strategic, core business processes and then decide which ones they want to focus their IT spending on, because then everything else kind of falls in place from there,” says Jeanne W. Ross, principal research scientist at the MIT Center for Information Systems Research. “These companies get so much better value from IT than the companies that say, OK, here are all the IT project proposals that were submitted this year, let's decide which ones have the highest ROI and

allocate the dollars accordingly.”

At State Street Corp., the Boston-based bank, IT knows which core processes to focus on because the company has an IT supergroup, the IT executive committee, devoted to talking about them 12 times a year. All of the heads of the different business units, along with the president and COO, sit at the table. The IT budget, which used to be controlled almost entirely by State Street's highly independent business units, is now in the committee's hands. The committee focuses primarily on IT investments, but it also discusses business strategy and the role of IT in supporting it, as well as IT-specific issues like security and architecture. The different units still have their own discretionary budget, and quite a bit of power to determine their own IT destinies, but they all know that the IT executive committee is there to serve the interests of the company as a whole, which right now is focused on improving customer service across all the business units. John Fiore, who developed State Street's governance structure as CIO, left the company last month. His successor, Joseph Antonellis, who assisted Fiore in creating the structure, says he will maintain it. “I strongly believe in the governance and the ideals that [Fiore] put in place,” he says.

Electronics manufacturer Flextronics also has an IT supergroup that consists of the CFO, the COO and the presidents of the company's different business units and functions. Because Singapore-based Flextronics' margins are so thin—2 percent to 3 percent on average—the group focuses on using IT to support and enforce a set of common practices in the company's core processes of planning, manufacturing and global distribution. Microsoft wants Flextronics to build its X-

Box game console with the same speed, efficiency and quality in China as it does in Mexico. “We need to provide global consistency,” says Mike Webb, Flextronics' senior vice president of information technology. “That is a fundamental part of our business.”

Such a clear message from the business's top leaders makes Webb's job much easier. For example, Flextronics' quest for consistency drives Webb to go really deep on the architecture piece of governance. The company has a single version of all its major software platforms that it installs around the world. Webb even has a staff of 60 fully dedicated in-house consultants who drop in like commandos to set up the infrastructure at a new plant. Control is so tight from Webb's 120-person corporate group (800 IT people worldwide) that when Webb ships a router to a new factory, it has already been configured and tested by his corporate group.

Of course, even at companies that place as high a value on technology as Flextronics and State Street, top executives have other things to do besides meeting about IT, so Webb and Fiore must be like rock and roll managers, keeping egos under control and minimizing fighting and boredom. Before leaving, Fiore already had seen a backlash against the depth and complexity of the IT discussions in the committee meetings. He reduced the size of the committee from 22 to 10 and rejiggered its mission to focus more on business and less on specific technology discussions.

Webb makes sure to keep the discussion in the room big-picture. “I don't involve [the committee] in the details of our IT infrastructure or our network security strategy, other than reviewing the cost,” says Webb. “I present them with plans that help them understand

The Power of Architecture

What you need to know about the CIO's most significant governance tool

Architecture—essentially the list of technologies you can and cannot use and the rules for allowing exceptions—is where most companies develop their first vestige of consistent IT governance. “It usually starts with someone in the business saying, How can we save money on IT?” says Jeanne W. Ross, principal research scientist at the MIT Sloan School Center for Information Systems Research. “And IT responds, Well, you can make sure everyone's using the same PC.”

Architecture is the most powerful governance tool CIOs have under their personal control. It's how CIOs enforce the goals of

technology standardization across a diverse company with many different competing interests. Vice President of IT David Drew uses architecture to drive the technology choices inside St. Paul, Minn.-based 3M, but he also uses it as a stick with vendors, who are all required to run their applications through a set of stress and security tests on 3M's standard architecture. “Vendors are less likely to try to sell our businesspeople something that they know won't fit with our architecture if they know they have to go through that process,” he says.

Yet despite its power as a governance mechanism, architecture plays only a consultative role in most companies. That

is, it's not a hard stop if projects don't conform, just a plea for changes. That's no longer the case at Boston-based State Street Corp., where former CIO John Fiore has his Office of Architecture run by an IT senior vice president. (Fiore left State Street last month.) New projects must pass through the office before they can be approved. If the projects don't match up with the architecture, the office will work with project sponsors to find a compromise.

Architecture may be a powerful tool, but it can also be dangerous. Too strict a policy can turn CIOs into the IT police, stopping more projects than they promote. That can generate resentment among businesspeo-

why we're doing something. I'll show them the business risks we face and then explain the level of investment that I think makes sense to alleviate that risk." He also keeps the details of IT architecture to himself.

But CIOs can't keep too much to themselves or they risk alienating the top execs. So education is important. At Milwaukee-based sign-maker Brady, Keith Kaczanowski feeds the company's top executives information about a technology before they have to make a decision about it. Brady recently centralized its computing infrastructure on a new ERP system, which raised the stakes on issues such as security and disaster recovery now that all the company's digital eggs have been placed in one system basket. Kaczanowski, who is vice president of IT and process improvement, devoted a meeting to educating the top executives on those issues because he knows he'll soon be recommending some new spending in those areas. At

Atlanta-based package giant United Parcel Service, CIO Ken Lacy also uses education to set expectations. "The top executives travel all the time, and they're hearing things about new technologies wherever they go," says Lacy. "So I listen for that. And we'll have education sessions on Linux, for example, where our people will present the issues and talk about why we think we should wait on Linux or go ahead with it."

GOVERNANCE FROM THE MIDDLE OUT: *When You're Decentralized*

Not all CIOs can expect to get that kind of attention from senior executives. That is why having a good committee governance structure at the middle level is so important.

Jeff Balagna, senior vice president and CIO for Minneapolis-based Medtronic, which makes pacemakers and other electronic medical devices, was brought in from GE in 2001 to establish a core governance structure. Medtronic is highly decentralized and was not interested in powerful supergroups. So Balagna formed a committee of senior IT leaders from the company's five business units. Many companies use this device, the IT council, to govern the IT function when they have multiple independent business units, each with its own IT staff.

Though he does not have the leaders of the different business units in the council, Balagna adds an interesting twist to this governance mechanism that gives it more strategic significance: Each CIO of Medtronic's five business units reports directly to the president of those business units, not to Balagna, who gets dotted-line



Former State Street CIO John Fiore made sure projects did not dead-end in the Office of Architecture.

ple, especially at the local level where an overly rigid, slow architecture review process could mean lost revenue. In response, business unit leaders may try to fly below the review radar. For example, if a rule decrees that all projects over \$100,000 must go before the board, units may break a big project into sub-\$100,000 chunks. That is why governance mechanisms all need an appeals process, a safety valve.

At State Street, for example, projects don't dead-end in the Office of Architecture. If there was an impasse, the units could appeal to Fiore. Now they can appeal to his successor, Joseph Antonellis. If a compromise can't be achieved there, the

aggrieved parties can go to the CEO. "That's a great thing because it raises the stakes," says Peter Weill, director of the MIT Sloan School Center for Information Systems Research. If you're taking your case for skirting the corporate architecture to the CEO, you'd better have a good reason. Indeed, very few appeals—one or two per year—get to State Street CEO David Spina's desk. More important, the appeals process reinforces the message State Street wants to send: Ultimately, the business is accountable for IT decisions.

And if it's accountable, it has to understand the rules. It doesn't hurt to explain the architecture to businesspeople often.

An e-mail from IT with an attachment listing approved technologies won't cut it.

When W.W. Grainger, the Lake Forest, Ill.-based distributor of plant and maintenance supplies, recently developed an enterprise architecture, Tim Ferrarell, senior vice president of enterprise systems, put together an education program and ran Grainger's top 100 executives through it. (It didn't hurt that Grainger CEO Richard Keyser required them to attend.) The program focused on explaining why Grainger had an enterprise architecture in the first place, and Ferrarell plans to put an interactive version of the program up on Grainger's intranet.

—C.K.

authority over them. The divisional CIOs sit in on their business units' strategy sessions and bring those strategies with them to the meetings of the IT council. That helps the council set an overall strategy for IT that reflects the business interests of the business units. When the committee decides to make a big IT investment or a major policy change, final approval goes to Medtronic's executive committee of top business honchos, but most of the company's IT discussion and strategizing remains at the IT level.

TOO MUCH GOVERNANCE?

If all these governance mechanisms sound like extra layers of bureaucracy, you're right. However, "large company bureaucracy is not always a bad thing," says Balagna. "It can keep you from doing knee-jerk technology projects."

But CIOs need to be careful. As layers of governance build up, innovation and flexibility suffer. Companies with highly formalized structures for investing in IT, for example, tend to invest only in projects that support current business. In a survey of 40 companies, MIT's Weill found that companies that do well in terms of return on assets tend to have tight, centralized governance mechanisms, while companies looking to maximize their market caps tend to push IT decision making out to the local business unit or end users.

All the committees and rules that come with good governance tend to lead to investment decisions short on risk or creativity. So companies have to be willing to devote a certain percent of the budget to experimentation—5 percent seems to be average for companies that maintain this innovative edge, according to Ross. At UPS, for example, Lacy has an advanced technology department that works with UPS's major vendors to test new technologies. And the department has the power to commission small-scale pilots from scratch. "There isn't a whole lot of off-the-shelf technology you can buy for transportation," Lacy says. To change that, UPS also has a Strategic Enterprise Fund that invests in small or startup vendors that could eventually deliver the functionality UPS is looking for.

THE END OF GOVERNANCE

At 3M, Drew says IT is surviving just fine without his supergroup. The company still has a corporate council, composed of all the functional heads, that talks about enterprise IT strategy on a regular basis. And IT projects over \$3 million still pop up to the executive committee, which gives Drew a forum to talk IT strategy with all the top execs. Beneath this level, he has built steering committees in each business unit and an IT operating committee, composed of the different business unit IT leaders, that meets regularly to talk strategy and prioritize investments.

Asked if he thinks his supergroup will ever reunite, Drew says no. 3M's new CEO is a Six Sigma fanatic, so the quest for zero defects in business processes will occupy top

CIO.com Is centralized IT governance the way to go? Let your fellow CIOs know when you **TALK BACK**. To post your comments, look for the Web Connections box at www.cio.com.

Governance Mechanisms

What's right for your needs

I.T. EXECUTIVE COMMITTEE

Membership: Senior executives and/or board members

Role: To identify key business processes and strategies to be supported by IT; perform risk/investment analysis of proposed large IT projects; measure IT value; review IT sourcing, security and architecture policies

Pros: CIOs don't have to guess what the CEO wants from IT

Cons: Other C-level execs can be bored to death by technology details

I.T. COUNCIL

Membership: IT and/or business unit executives

Role: To monitor and evaluate ongoing IT projects for risk/value/cost; identify shared service opportunities across business units and IT; evaluate and approve IT architecture

Pros: Enables the enterprise to share best practices and avoid duplication of effort

Cons: May suffer from a lack of strategic direction

ARCHITECTURE COMMITTEE

Membership: CIO and direct reports

Role: To create and enforce standards for IT across the enterprise and to assess exceptions to the rule

Pros: Saves money

Cons: Too much standardization may quash innovation

BUSINESS PROCESS TEAMS

Membership: Businesspeople and IT

Role: To improve process speed and quality and reduce cost

Pros: Focuses IT directly on business unit needs

Cons: May lack enterprise focus; difficult to coordinate efforts enterprisewide

SOURCES: CENTER FOR INFORMATION SYSTEMS RESEARCH, MIT SLOAN SCHOOL OF MANAGEMENT; I.T. GOVERNANCE INSTITUTE; CIO REPORTING

management for the foreseeable future. Drew has responded by placing IT people on all the Six Sigma teams and doing his best to anticipate the IT requests that will come out of the exercises.

In the end, and above all, governance must be adaptable.

"You can't solve everything with committees," Drew says. "You have to figure out the most practical way to interrelate with senior management on IT issues and be prepared to change the way you do it. There's no standard model for that." **CIO**

Executive Editor Christopher Koch can be reached at ckoch@cio.com.

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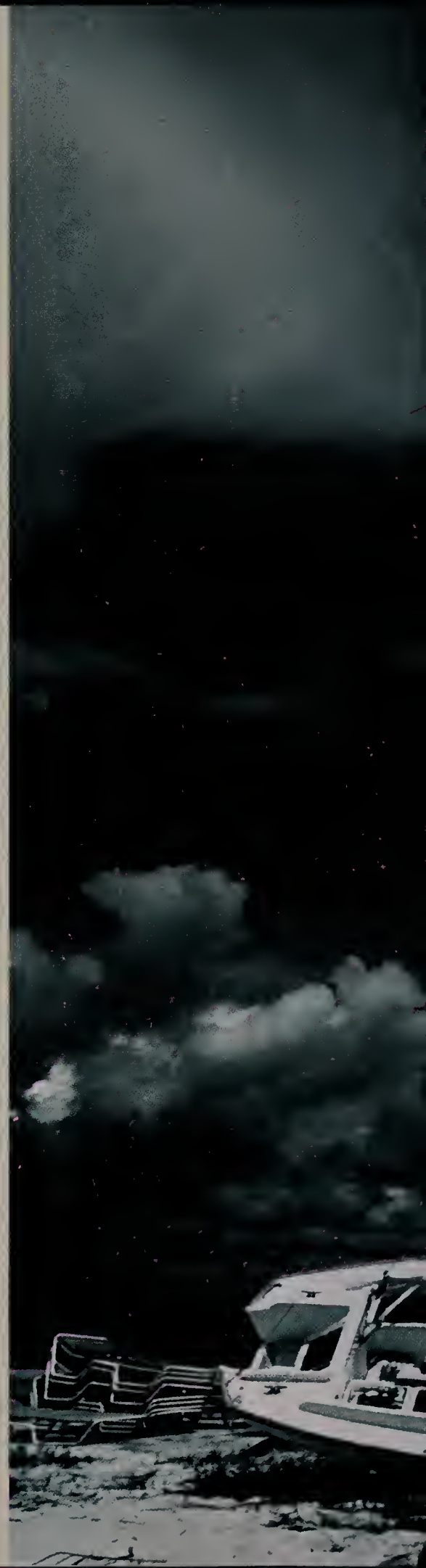
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the best defense

While most security dollars go to technology, CIOs in our exclusive survey say investments in staff—and educational efforts to guide them—must back up that robust firewall

BY MERIDITH LEVINSON

LAST APRIL, DONALD CANTWELL, VICE PRESIDENT OF I.T. FOR THE New York City School Construction Authority (NYCSCA), witnessed one of a CIO's worst security frights: An employee caused a breach that had criminal implications.

One of Cantwell's employees was indicted on charges of identity theft. A 27-year-old programmer, who had written the agency's HR applications, was caught in a police sting after authorities alleged that he stole and sold the names, addresses, phone and Social Security numbers from the personnel files of 76 NYCSCA employees.

If there was a silver lining it was that the incident gave us the opportunity to review everyone who had remote access, and [that] caused us to tighten our security practices," says Cantwell.

The review led to action. To prevent another breach immediately following the sting, Cantwell and his staff brought down the agency's remote access servers. Once they rebuilt the servers, they also had to re-enable remote workers so that they could again log in to the systems. During the two days it took IT to clean up the mess, remote employees couldn't access systems. And after the problem was allegedly rectified, employees remained uneasy about the privacy of their personal information.

As a result of the incident, Cantwell was able to push through a number of security policies he had on the table when he joined NYCSCA in June 2001 and continues to evaluate others. He's instituted password policies and rules for systems access. NYCSCA now strictly limits employees' and contractors' access to information based on their function in the organization. For example, a field engineer can still access an application that manages construction in the field to submit a request to pay a vendor, but she can't initiate a new contract with a vendor in that system. Cantwell is evaluating access controls on legacy systems applications so that he can

set up audit trails that will track when someone uses a system or accesses information he shouldn't. And this summer Cantwell hired a senior security officer to head up info security efforts.

Notably, Cantwell has not rushed out and spent a bundle from his limited security budget on new security technologies in response to the incident (though he does plan to invest in key fobs for remote employees). Instead, he prefers to focus his security efforts and his spending on policy. "If you have no policy, you have no place to start [your security strategy]," he says.

That emphasis on setting up employee policies and systems access controls is unusual among IT executives. A security spending survey of 276 IT and business executives conducted by CIO last April and May confirms that companies spend more on technology than they do on IT security staff or on administrative moves such as setting policies for e-mail use. Indeed, most of the 11 IT executives interviewed for this article allocate the bulk of their spending to technology products.

It turns out that, according to our survey, organizations with a chief security officer (CSO) or a dedicated security team tend to spend more on technology, policy, staffing and education to mitigate their risks than companies that don't have an individual dedicated to information

Reader ROI

- ▶ Why IT executives say security policies are just as important as technology investments
- ▶ Why some companies have hired an IT security chief and others have not
- ▶ The results of CIO's survey on hiring a CSO and other security spending priorities

Security Spending Survey

security. Arguably, those companies with dedicated security staff are more aware of security threats and better positioned to combat breaches and viruses.

This is not to say that security-savvy CIOs all have hired a CSO; indeed, 53 percent of our survey respondents haven't added one to their staff. (For more survey results, see www2.cio.com/research and the charts located in this article.)

But what clearly comes through in research and interviews is this: CIOs are saying that while they will continue to invest in security technologies, it's time to raise the profile of people in IT security. There needs to be an emphasis on leadership, as well as leading-edge tech, and time and money spent on staff to both set up access controls and educate colleagues about security threats and their consequences.

Security Bedrock: Systems Usage Policies and Employee Education

In our CIO survey, spending on IT security takes \$8.40 out of every \$100 in an average organization's IT budget. While technology products get the biggest share (42 percent) of CIOs' wallet for security, these products by themselves can fail to prevent the little accidents that can turn into big headaches.

That's why IT executives stress the importance of setting up systems usage policies and educating employees about both them and about threats that crop up.

The CIO at an IT, engineering and logistics consulting company in Alexandria, Va., tells the story of how, in spite of all his fancy firewalls and antivirus software, a virus managed to squeak through, infect an employee's computer, and put gray hairs on the head of the employee who lost data and on the heads of the IT staff who spent hours attempting to reconstitute it. The CIO estimates that the cost of the incident in terms of staff time, lost productivity and damages is between \$2,000 and \$3,000 because it affected only one user's computer.

"During the 'I Love You' virus, we had a guy in the company who's very jealous wife went into their AOL account and saw an 'I Love You' message. She called him up and asked him about the message. He went into AOL and opened it. Fortunately, it did not infect the rest of our systems. It just screwed up his machine," says the CIO, who asked not to be identified by name.

In retrospect, the CIO realizes that the incident could have been avoided if he had tightened his systems access policies and regularly spoken to the organization about new viruses. "If we are going to get

NOTE: CIO's online survey in April and May 2002 received 276 responses from IT executives (78 percent of the respondents held the title of CIO, CTO or vice president) working in a range of industries. One-quarter of companies represented in the survey had annual revenue of \$1 billion or more, while 33 percent had revenue between \$100 million and \$999.9 million.

All Security Budgets Are Not Equal

Everyone expects his security budget to rise in 2003. But companies with a dedicated security staff expect a lower markup.

Organizations WITH a dedicated security staff say they will increase their investments in information security in 2003 by **18.8%.**

Organizations WITHOUT a dedicated security staff say they will increase their investments in information security in 2003 by **40.3%.**

CIO RESEARCH

better, we have to learn from mistakes like that. We have to come up with policies for employees about what to do and what not to do when they get a virus."

NYCSCA's Cantwell agrees that policies are the foundation for good security. The budget-strapped CIO knows that while policies can't prevent internal and external hacks, they can make employees accountable for their actions and delineate potential penalties if they don't treat confidential information with care. "We have a rigorous policy that requires internal and external people to sign for the fact that they're getting access to confidential data and acknowledge that they have to protect it. That won't stop [every in-house breach], but at least they know the rights, duties and responsibilities they have with regards to [handling] this information," Cantwell says.

Even companies that spend heavily on technology realize that they need to devote more attention to policy and education.

Cheryl Bertrand, CIO and vice president of IT at Seattle-based Text100, a \$33.7 million global high-tech public relations company, has invested heavily during the past year in building up her company's security infrastructure along with its global networking capability. She has invested in VPN firewalls, intrusion detection systems, content filters and key fobs (a security token the size and shape of a credit card that hangs off a key and issues a numerical ID that changes frequently). Now, Bertrand says, she sees a need to focus on policies, procedures and education.

"Since our global network is such a new thing for the company, it's important that we have proper access policies in place—establish permissions, policies for adds and deletes, and normal code-of-conduct procedures for using the network," says Bertrand.

Deborah P. Close, CIO of the Doris Duke Charitable Foundation in Hillsboro, N.J., also plans to increase her emphasis on security policies. While Close's security budget contracts by 3 percent during the next year as she moves from spending mode into maintenance mode, she still intends to allocate 10 percent more of her reduced security budget in 2003 toward establishing policies for password



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management, procedures for dealing with viruses, and security education for the entire staff of the \$1.4 billion foundation. After all, dealing with viruses is a productivity killer for her staff, and the training will help users recognize potential viruses earlier.

But going too far, creating policies that are too restrictive, is a productivity killer too.

Steve Williams, CIO of \$250 million retailer Mattress Giant in Addison, Texas, says that after a former employee disclosed confidential data when he went to work for a competitor, the first reaction by field management was to completely stop disseminating the information that the employee had stolen. The company reversed that course after changing the business processes that allowed that employee access to privileged information.

"To recoil and pull all the information away would have made the rest of the company in similar positions ineffective in their roles. The company would have lost a lot more money," he says. Instead, Mattress Giant examined what legal recourse it could take in similar situations and made sure the ramifications of breaching the company's confidentiality agreements were made clearer to employees, Williams adds.

An Argument for the CSO

These kinds of discussions about management approaches to security have led some companies to appoint a CSO or other person to lead IT security efforts.

Rod Hamilton, CIO of Hygeia, a privately held company based in Miami that provides services to health-care insurers and providers, is among the 28 percent of IT executives *CIO* surveyed who say with conviction that they are confident in their company's security measures.

Much of Hamilton's peace of mind comes from having appointed an information security chief who has many years of experience in the field. "It's because of his presence that we're able to handle things," says Hamilton. The CIO adds that Hygeia's security officer has raised the entire company's awareness of the issue—to the point that information security is among the company's top priorities—and has put technologies, policies and processes in place to keep sensitive information under lock and key.

Of the 276 companies surveyed, just under half (47 percent) have a point person such as a chief security officer in charge of their IT security efforts. These companies spend on average 15 percent of their IT security budget on staff (those without a CSO equivalent spent 6 percent of their IT security budget on staff, on average).

For Hygeia, "Our awareness of the threats we face is heightened by having [our CSO] present," says Hamilton. (To be fair, Hamilton says

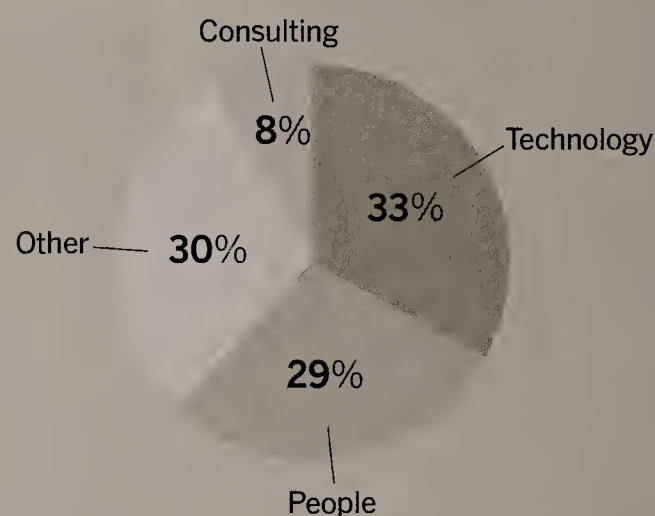
the Health Insurance Portability and Accountability Act of 1996, better known as HIPAA, which will require Hygeia and other health-care companies to follow strict federal rules for

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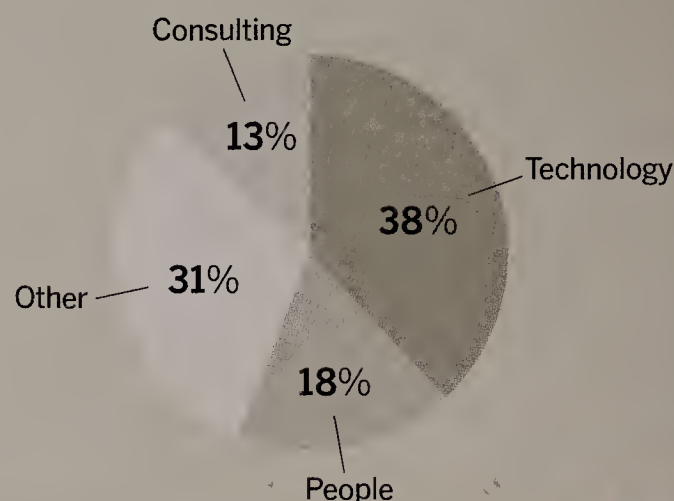
Getting It, Not Getting It

Organizations with a dedicated security staff spend more on people and less on technology and consultants

Organizations **WITH** a dedicated security staff spend their IT security budget on:



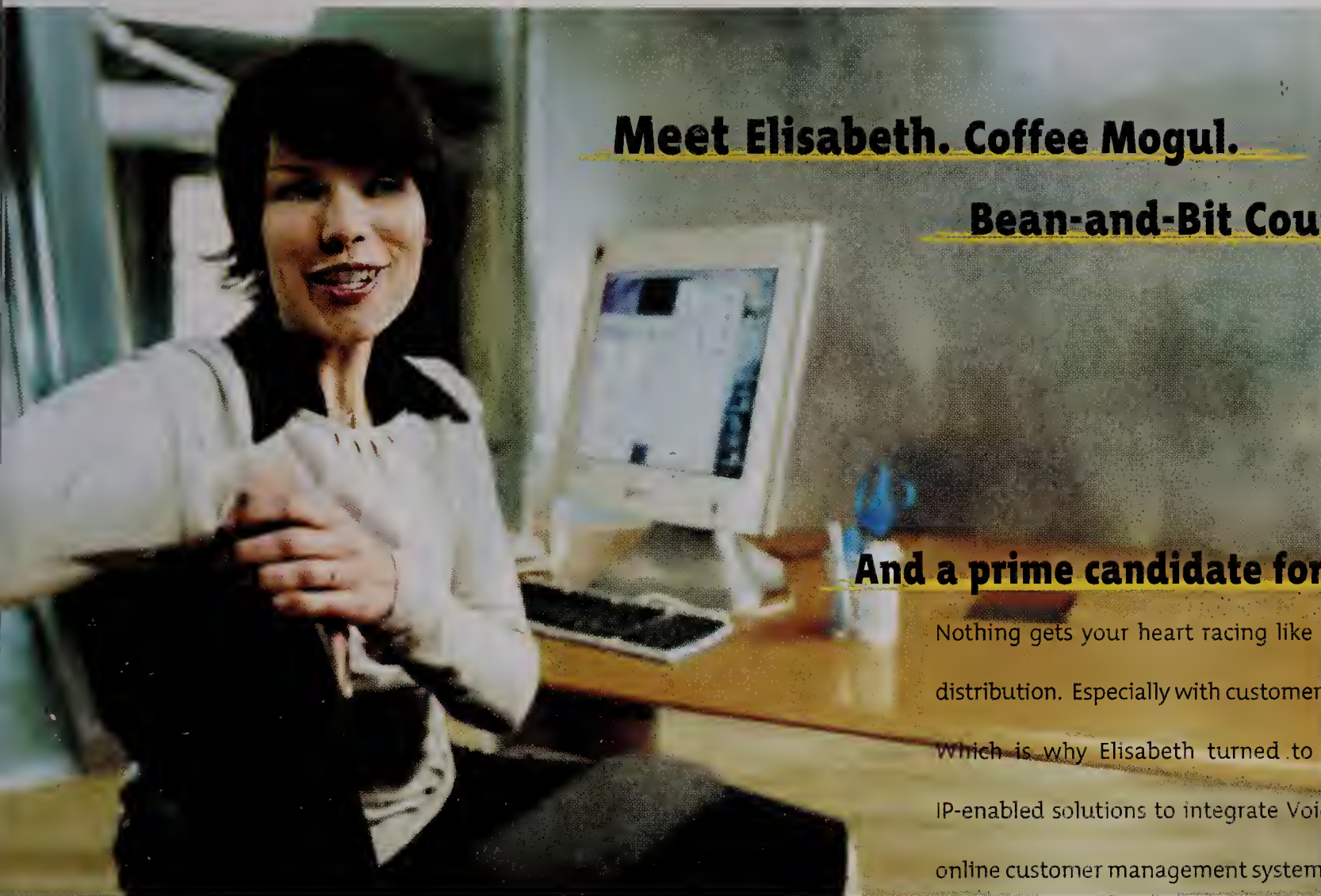
Organizations **WITHOUT** a dedicated security staff spend their IT security budget on:



CIO RESEARCH

protecting the privacy of patient data, is also driving the company's vigilance about information security.)

If his security director should leave Hygeia—after all, his skills are in hot demand, a reason Hamilton declined to name him—Hamilton's not going to start biting his nails unless he can't find a ready replacement. "Once you have someone like that in your organization, it's hard to get by without them," he says. Hamilton says Hygeia's contingency plan includes making sure his security chief thoroughly documented all of his work, having him perform some network penetration tests to identify any vulnerabilities and assigning his security director's routine tasks to another employee. "If we couldn't get somebody in quickly [to replace him], we would ask a third party to review our environment to make sure he hadn't introduced any holes," he adds.



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Even so, appointing an IT security chief doesn't remove the burden of authority from the CIO, according to the CIO survey: 64 percent of those IT executives who have named a security officer said their company's CIO or CTO still retains the final say over IT security investments. Only one respondent said a CSO is in charge of such spending decisions. So, who is the boss of Hygeia's CSO? Hamilton, of course.

Security Is Everyone's Business

Not everyone buys the IT security chief argument, rejecting the idea of appointing one person to lead the corporate information security effort.

"Security should be the focus of every IT employee," says Mattress Giant's Williams, who manages a 17-person IT staff. "Every functional head in my IT department has a security role for their respective function. You put too many eggs in one basket when you have one person in charge of security," he adds.

Text100's Bertrand also makes security part of the job of everyone in her 12-person IT group. She says that each function in her IT department—applications, infrastructure and help desk—approach security from their own perspective.

Doris Duke's Close has gone a step further and has hired an outside company to manage her organization's VPN firewalls, content filter and intrusion detection system. She says it's cheaper for her to outsource information security than hire full-time employees to manage it. "They're basically my security department," she says of her outsourcing partner, Square One of Holmdel, N.J.

CIOs who worry about losing control or authority if they dedicate a person or staff of people to security are missing the point—at least according to our survey findings, which suggest that that companies with a CSO or dedicated security staff may very well be better off.

The companies with someone overseeing the information security function spend slightly more of their IT budget on security, while spending less of that budget on outsourcing and consulting. Companies that have a CSO or equivalent reported spending an average of 9.2 percent on third-party services, while companies without a CSO spend 16.5 percent on security consulting and outsourcing. (The ratio on IT security staff spending flips; companies with a security chief spend an average of 15 percent of their budget on staff, while those without a security point person reported spending an average of 6 percent of their security budget on staff.)

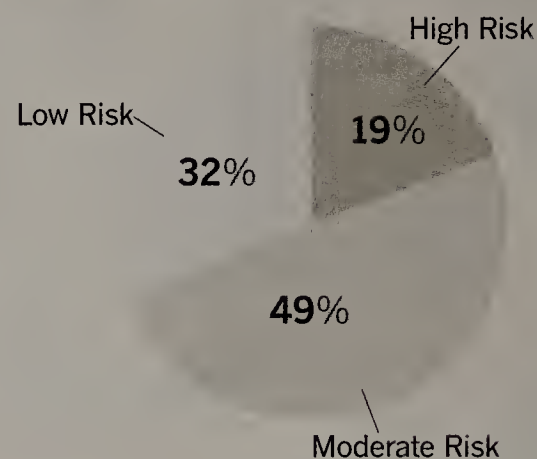
Furthermore, organizations that don't have a CSO or equivalent plan to increase their security spending on technology, education and policy more than those that do have a CSO, which suggests that they may be playing catch-up in areas that the CSO organizations have already made investments. Their plans to beef up their spending on technology also suggest that they rely on technology to do the work that people might otherwise do.

The bottom line? Security is an involved, full-time job, and therefore, you need a dedicated security staff to monitor incidents and

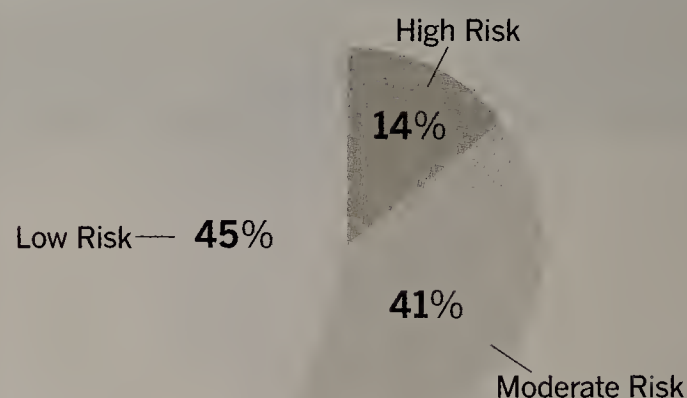
The More You Know, the More Risk You See

Companies with an IT security staff see more threats to manage

Organizations WITH a dedicated security staff believe that their risk for a future security incident is:



Organizations WITHOUT a dedicated security staff believe that their risk for a future security incident is:



CIO RESEARCH

develop and disseminate policies.

Al Garcia, vice president of IT for Comac, a \$25 million marketing fulfillment company based in Milpitas, Calif., says that if you don't have someone monitoring those systems, they're useless. "If we buy tools, we need staffing. Looking at log files and incident reports can drive you nuts. You need two to three people in your organization to make sense of it," he says.

Finally, having dedicated information security personnel doesn't preclude the rest of your IT department and your entire organization from being vigilant about security.

Spending Wisely

Though no one (except possibly the CIO of the Department of Defense) has carte blanche over security spending these days, it's still important to keep some guidelines for smart spending top of mind.

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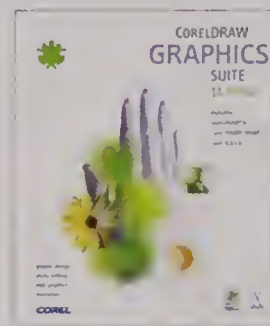
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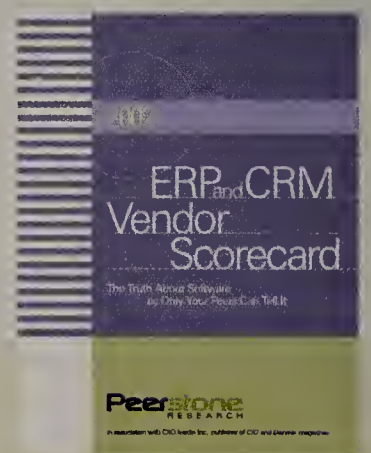
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Getting It, Not Getting It, Part 2

According to our survey, our respondents' IT security practices don't add up

93% of the respondents identified IT security as their TOP spending priority.
But **53%** do not have ANYONE on staff dedicated to IT security.
And they currently devote ONLY **2%** of their total staffing resources to IT security.
Go figure.

CIO RESEARCH

us? Will they do what we want?" asks Comac's Garcia. "We have no fear of spending money, but we have to do it wisely," he says. "Our smart money goes to ensuring we're doing the basics properly: Do we have good firewalls, good antivirus software?"

For NYCSCA's Cantwell, spending wisely also means focusing on the basics. He believes in evaluating processes before investing in

fancy technologies. Recently, he had a situation where a colleague had allocated money for biometric security devices to safeguard laptops. As Cantwell looked at the security practices in that part of the organization, he noticed that there was widespread sharing of passwords, a glaring security gap. He vetoed the biometric system and tightened up password policies enterprisewide.

"I need to do the meat and potatoes first. It does no good to put two dead bolts on a door when the patio window is open," Cantwell says.

So how do you know when you're safe? Bertrand suggests doing a security audit, a process usually conducted by an independent company that evaluates an organization's security measures—such as the configuration of firewalls, employee vigilance about security and systems administrators' ability to identify an attack—and then recommends improvements. But even after you've hired the hackers and the consultants, you can't become complacent. And few CIOs are. Just 2 percent, in fact, according to our survey. Even the CIOs who appear to be covering all their bases still say they're at risk.

"I'd rather be of the mind-set that there is risk," says Bertrand. "That keeps you sharper." **CIO**

Reach Senior Writer Meridith Levinson at mlevinson@cio.com.

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HOW TO WIN FRIENDS AND INFLUENCE USERS

BY STEPHANIE OVERBY



THE ABILITY TO HANDLE TOUGH USERS IS A VITAL SKILL FOR CIOs, SINCE THE
SUCCESS OF ANY ENTERPRISEWIDE IMPLEMENTATION HINGES ON USER ADOPTION

ILLUSTRATIONS BY ROB DUNLAVEY

A

fter one week on the job as CIO of Des Moines, Michael Armstrong was thinking he'd made a big mistake moving to Iowa from Lexington, Ky.

He was discovering that the capital city's civil servants thought they were doing just fine without IT.

Many of the 2,100 city workers were perfectly content to work with paper, pens and Post-it notes—even those who had access to the city's antiquated desktop PCs. As Armstrong strolled past one department head's office in September 1997, he noted that his computer monitor served as nothing more than an expensive frame for his children's artwork.

In a department meeting, he butted heads with the assistant chief of police, who explained in no uncertain terms that he didn't want the CIO telling him how to run his department.



Police Capt. Len Murray's department was dubious about what Des Moines CIO Michael Armstrong (right) could do for them. Not anymore.

Reader ROI

- ▶ How to recruit technology champions to persuade recalcitrant peers
- ▶ Why different categories of tough users require different approaches
- ▶ How to make your implementation as user-friendly as possible

"It was gloomy," Armstrong says.

Today, Armstrong has moved Des Moines from a mainframe to a distributed environment, installed a fiber-optic network to connect all facilities, and developed the city's first systems standards. But winning over busy and technophobic police

officers, city clerks and administrators was what kept Armstrong up at night. And in the end, he ranks it as his greatest achievement.

Almost every CIO can tell horror stories about her toughest users. Health-care CIOs would say that doctors are the most difficult users, while IT execs in the tech industry might argue that their techno-savvy employees are the most demanding. One truism emerges: The ability to handle tough users has become a vital skill for all CIOs, if only because the success of expensive enterprisewide IT projects ultimately hinges on user adoption.

There are a variety of reasons for user resistance. Some users may be technophobic or afraid of change, as in Des Moines' City Hall. Some may be too busy or focused on their own priorities to see the importance of IT to their work. Michael Jones, corporate vice president and CIO of Children's Health System in Milwaukee, faced challenges when he tried to introduce a computerized physician order entry (CPOE) system to doctors there. Still others, like CIO Terry Milholland's user constituency at EDS, may be so knowledgeable about systems and business processes that they have their own ideas about what's best for the enterprise.

"There are a lot of reasons users can be difficult, but what we're really talking about is people that, for whatever reason, are blocking progress," says Leigh Kelleher, global leader in the global learning practice at Braxton (formerly Deloitte Consulting) in New York City. "And it's the CIO's job to figure out who those people are and why they're reluctant."

Getting Off on the Wrong Foot

Des Moines' CIO didn't know how to win his users over right away. In fact, his first attempt was a disaster.

Armstrong wanted to implement a PeopleSoft application for financials and HR. He decided to do the project in nine months and introduce the financials and HR pieces all at once, hoping to get the pain over quickly, somewhat akin to ripping off a Band-Aid. But during the course of the nine-month rollout, 40 percent of the employees in the finance department's accounting division left; some involved in the implementation simply got burned out by the long hours while others were scared off by the changes to their jobs. The HR department also lost a few employees. And halfway through the project, Armstrong realized his staff wasn't going to cut it in the new environment. He fired 60 percent of his workers.

"The implementation was incredibly disruptive. We pretty much blew up three departments," Armstrong explains. "I was not prepared for the depth to which it would affect the organization."

It was a potentially disastrous situation for a CIO hoping to build a solid relationship with his already wary users. In fact, a botched project is one of the major reasons users get turned off to technology. "The most phobic users are people who have been burned by poor implementations," Braxton's Kelleher says. "They may not be afraid



of technology. They may not even be afraid of change. But they're afraid of poorly managed change. And that's the biggest concern that CIOs should have."

Armstrong attempted to ease tensions by admitting he messed up. "The best thing you can do is take the heat," he says. And he learned some valuable lessons in how *not* to introduce a huge, new system to reluctant employees. He had rushed the implementation, promised more than he could deliver and underestimated the amount of change the city could absorb at once.

Two years later, he applied those lessons as he attempted to introduce technology that would automate how Des Moines received, managed and resolved requests from its 200,000 citizens.

You Can Right City Hall

Armstrong knew that he needed buy-in from all 15 city departments to make the CRM system a success.

With that in mind, he plotted his strategy. First, two of his project managers spent a year talking to city workers to find out what they did when they received calls. Those conversations led to a useful outline of the more than 1,250 different types of calls the city



"I was skeptical," says Dr. Thomas Rice of Milwaukee's Children's Health System. CIO Michael Jones (left) had to show Rice how IT could help him help others.

received—from trash pickup and pothole patching to barking dogs and cats up trees. It also made the users feel important. "A lot of them were flattered because they had never been asked about what they did," says Armstrong.

Based on the city's needs and budget constraints, Armstrong decided to spend \$300,000 on the whole project using Heat software from Colorado Springs, Colo.-based FrontRange Solutions.

To alleviate any potential alarm about lost jobs or reorganization, Armstrong decided against going to a central call center to operate the system. "We didn't want people to feel that their jobs were being threatened, especially at a time when we're trying to get knowledge from them," Armstrong says. "And we didn't want to have to reeducate the public, many of whom had gotten used to calling specific departments or even a specific person they knew by name, when they had a problem."

At the same time, Armstrong worked to demonstrate the value of

the system to those departments that were less than excited about the upcoming changes. The police didn't see what the system would do for them that their 911 system didn't. Their technology wasn't broken, they argued, so why fix it? Armstrong pointed out that standardization would help with interdepartmental programs that were not strictly police activities, such as a project that offered concentrated police, fire and social services to distressed neighborhoods.

Armstrong began the implementation with the department where the work would be most intense: public works. He thought it was a good place to start for two reasons: It received the most calls, and the department head was an advocate of automating its processes.

But not everyone in public works was thrilled with the system. Greg Cloe, the department's customer service supervisor, would have preferred a package solely designed for public works' myriad needs instead of an enterprisewide system. "I knew it would require a significant dedication of resources to get it to work for us, and I was concerned about that," he explains.

To address those concerns, Armstrong and his team worked closely with Cloe to customize the software. "Because of the IT team's cooperation in listening to our needs, we're pretty pleased with the overall product," Cloe now acknowledges.

Armstrong brought on one department at a time, enlisting key people in each area to help him customize the system for that department's needs and utilizing these "change evangelists" to help drive the implementation.

"That's one of the things we've learned over the last few years: Involve people early and often," Armstrong says. "And not just the department heads and line managers, but the actual people doing the work."

Today, the citizen response system is up and running with 12 of the city's 15 operating departments (including all major service providers) using it to handle 9,000 calls a month and automate processes previously managed with Post-it notes. The system provides a standardized way to take a complaint, store it in a central database accessible by any city worker and track the status of the associated task. It also generates automatic alerts for follow-up action and offers the capability to analyze the data for reports. In fact, the system was named one of the 10 most significant CRM implementations of 2001 by Boston-based consultancy Aberdeen Group.

But one of the best indications that Armstrong has tamed his tough users is the fact that the police department has agreed to let Armstrong and his team take over responsibility for its information systems. It signed on for a \$5 million to \$7 million IT upgrade covering everything from 911 systems and electronic records management to mobile data systems and radio improvements.

Why Doctors Are a Pain

When Children's Health System's Jones wants to get through to his

most demanding group of users (the physicians), he goes to grand rounds. As he joins the residents, interns and attending physicians in the Milwaukee hospital's auditorium, the topics range from neuroblastomas to psychological sequelae after pediatric trauma. But when Jones attends, the discussion includes IT.

Doctors are not technophobic. Quite the opposite, says Bradford Holmes, health-care research director at Cambridge, Mass.-based Forrester Research. "When it comes to clinical technology—new laparoscopic technology or a new defibrillator—lots of them are technology addicts," he says. But when it comes to information technology, doctors, Holmes says, "have a limited desire to learn new software and applications, particularly if it will take them a lot of time."

So when Jones decided to introduce a CPOE system at the hospital last year, "There were months of going to grand rounds, physician directors' meetings, any open discussion that we could find," he says. He had already built some credibility with these users shortly after his arrival in 1996, when he upgraded a hospital information system to handle administrative processes like registration and billing.

This time around, he enlisted the help of critical care pediatrician Dr. Carl Weigle, a 12-year veteran of Children's Health. Since the doctors weren't exactly clamoring for automated order entry, having a veteran physician touting the system definitely helped. Getting ardent users to advocate with their peers is the best way to get buy-in for big technology changes. "That's just the way things work in the medical culture," Holmes explains.

But that was just the first step. What draws doctors in are features that improve patient care, save time or generate revenue. Weigle and Jones found that their best selling-point for CPOE was patient safety. According to the National Institute of Medicine, avoidable medical errors kill between 44,000 to 98,000 patients a year, and automated order entry, which eliminates mistakes due to indecipherable handwriting, offers a powerful solution to that problem.

Jones recruited the most enthusiastic users to help in the selection and implementation of the CPOE system. As the new part-time medical director of information services, Weigle also tried to involve

A CIO's Guide to the Toughest Users

SPECIES: THE OLD DOG

Behavior: Fearful of new systems because "we've never done it that way."

Common habitats: Government, construction companies, nonprofit organizations.

Identifiable characteristics: Desk littered with Post-it notes; gold pin for 20 years of service.

Care instructions: Introduce one big change at a time. Explain how the new system incorporates their old way of doing things. Install reward and recognition systems for using new technology.



SPECIES: THE MISSIONARY

Behavior: Busy and driven by a higher calling (for example, saving lives, curing cancer, litigating); thinks learning about IT is a waste of precious time.

Common habitats: Hospitals, law firms, pharmaceutical companies.

Identifiable characteristics: Assistant who reads him his e-mail; 80-hour workweek; six-figure salary.

Care instructions: Explain new systems in terms to which they can relate: for example, improving care, saving time, increasing revenue. Enlist user liaisons. Tailor training to their needs.

SPECIES: THE KNOW-IT-ALL

Behavior: Tends to have strong opinions about everything from system requirements to vendor selection.

Common habitats: High-tech companies, business consultancies, engineering firms.

Identifiable characteristics: Late-model PDA; technology conference badge.

Care instructions: Create mechanisms for input. Invite criticism.



SPECIES: THE NERVOUS NELLIE

Behavior: Burned by bad IT implementations, worries that any change will be bad.

Common habitats: Anywhere and everywhere.

Identifiable characteristics: Arms folded in disbelief, head shaken in disgust.

Care instructions: Ensure every major project has metrics that can be tracked. Publicize practicality of new systems. Build IT strategy from the bottom up. —S.O.

the users that were the most dubious about the project. "The ones that were asking the smart questions, the tough questions, I tried to recruit to our selection team because I knew they would ask the important questions," Weigle says.

Among the unconvinced was Weigle's boss, Dr. Thomas B. Rice, director of the pediatric intensive care unit. "I was skeptical of how the technology could help me as an end user," says Rice, who has



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worked at the hospital for 27 years. According to Rice, the flexibility of the IT team in responding to his and other doctors' concerns was critical. "Mike's biggest strength is that he's open," Rice says. "But the key has been having [Weigle] involved; he understands the physician end of it."

Once the interdisciplinary team decided to invest \$6 million in the installation of the CPOE system from Boca Raton, Fla.-based Eclipsys, the next hurdle was training. For the busiest users, this can be the point of pain. You may have sold them on the benefits and given them all the right functionality, but if they don't have time to learn how to use it, all is lost. So Jones decided to cut training time. "We limited it to one hour and just trained them in the basics," says Jones. He also ended up training the most gung ho residents separately from the attending physicians, who were not as motivated to learn. "We had tried training the old guard and the new guard together in the first training session. The attendings were complaining and asking how is this going to work, while it was going too slowly for the residents," Jones explains. "One approach did not fit all."

He supplemented the hour-long intro to CPOE with ongoing support from users more familiar with the system. "Doctors learn according to 'see one, do one, teach one.' You watch someone do an appendectomy, you do one, and then you teach someone else to do it," Holmes explains. "You have to ditch the manuals and the long classroom sessions."

Following the launch—half of the physicians were brought on board in June 2001 and the other half in September 2001—Jones provided 24/7 user support the first two weeks after each rollout. The implementation has included a great deal of follow-up work. "Someone in IT makes the rounds once a week to all areas of the hospital to listen to and document complaints," he says.

Adoption rate is now nearly 100 percent, according to Jones, although a certain number of surgeons tend to rely on residents to do their computerized order entry. He has resigned himself to the fact that some may never use the system.

But the successful introduction of CPOE has further enhanced the IT department and the CIO's credibility among hospital users. Jones is considering several upcoming projects, including a new picture archiving communications system, a move to electronic medical records, updated operating room systems and a pharmacy robot. But he understands that each user group can handle only so much change. "We would get in trouble if we introduced too much change at one time," says Jones.

Too Smart for Their Own Good

The people who work for EDS CIO Milholland love technology. And therein lies the problem. "I wouldn't exactly say that I get second-guessed, but there are *lots* of people with opinions about what we ought to do in terms of technology and what we ought to use," explains Milholland, who is also senior vice president and CTO.

Fortunately, Milholland has been dealing with smart, informed but often troublesome users for his entire career. He came to EDS, headquartered in Plano, Texas, after 21 years at Seattle-based Boeing. As a result, he understood that an autocratic approach would never work at EDS. "When you're dealing with people that are technology savvy, you could stand there as a sort of dictator and say, I know best. And for a little while, you'd be successful," Milholland explains. "But in the long run, it's better to invite other opinions."

To that end, all of the company's 140,000 employees in 60 countries are permitted to weigh in on IT issues via a Web-based work

"When you're dealing with people that are technology savvy, you could stand there as a sort of dictator and say, I know best. But in the long run, it's better to invite other opinions."

—EDS CIO TERRY MILHOLLAND

space. EDS also has established operating councils that include users from various business groups. Milholland says he's tried to create an open and flexible system—with one exception. "After there's been a vigorous exchange of views and something is settled on, that decision must be enforced," he explains. "Then the debate is over."

When Milholland was looking for an ERP solution in 2000, he found that there were all kinds of users who had pet technologies they wanted to use. After soliciting input electronically and hashing out issues on the ERP operating council, the decision was made to upgrade to an SAP 4.6c system. "Along the way a lot of people came along and said they would prefer the latest package from this or that vendor. But in the end, we made the decision," Milholland says. Thus far, all U.S. locations are upgrading, and the EDS offices in 23 countries have standardized on SAP for finance and HR.

Milholland says it's often enough just to give users the opportunity to be heard. "If you provide that path, you actually reduce the amount of noise you have to deal with." **CIO**

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Case Files: AMF Bowling Worldwide

CUSTOMER FOCUS

KNOWLEDGE MANAGEMENT

PROJECT MANAGEMENT

VALUE PROPOSITION

COMPANY INFO

FOUNDED

AMF Bowling Products, a subsidiary of AMF Bowling Worldwide, began as American Machine and Foundry in 1900. The company got into bowling after the founder's son invented the automatic pinspotter in 1946.

REVENUE

\$136.4 million

HEADQUARTERS

Richmond, Va.

EMPLOYEES

660 in the products division

CUSTOMERS

Some 6,000 U.S. bowling centers (of which AMF owns about 500)

URL

www.amf.com

CRM OBJECTIVE

To capture accurate customer information and fine-tune sales and marketing efforts

THE PLAYERS

JOHN FOTTRELL

Vice president of IS

JOHN WALKER

Senior vice president of global sales and service

JAY BUHL

Vice president of North American sales

HARSHA NAGARAJ

Systems architect

THE EXPERT

WENDY S. CLOSE

CRM research director, Gartner

Bowling for Customers

On its second try, AMF got sales-force automation right

BY ALICE DRAGOON

TWO YEARS AGO, reps at AMF Bowling Products had good reason to shudder at the very mention of sales-force automation (SFA). It is notoriously hard to get right, and the company's first attempt failed miserably.

AMF reps sell everything from shoe spray to the back-office software that runs a bowling center. They need a way to track their customers—owners and managers of some 6,000 U.S. bowling centers—and the equipment they already own. Knowing which customers have ancient ball return machines or out-of-date automatic scoring systems helps them zero in on the best sales targets. The company's first major SFA effort—a series of homegrown Lotus Notes databases of customer information—didn't take long to earn the sales reps' ire. Reps couldn't take their laptop into bowling centers and enter customer data without looking like spies to the alley owners with whom they were trying to establish trusting relationships. So

instead, they'd scribble notes on paper. But after schlepping through four to six bowling centers, the last thing reps wanted to do when they got to their hotel at night was fire up their laptop and spend up to an hour logging their sales calls into one database and entering data on what kind of equipment each center had into another. Because it usually took another 30 to 45 minutes and sometimes as much as two hours to replicate their notes, most reps gave up in frustration. "You're talking about an extra two hours at the end of the day," says Chris Keller, Long Island, N.Y.-based Northeast district sales manager and a 10-year AMF veteran. "The application was just too difficult. We're salesmen. We need to use our time to make money." Keller confesses he abandoned the Notes system after about three months.

Only half of the sales force updated Notes religiously, and as time went on, usage fell, says Jay Buhl, vice president of North American



sales. By 1997 the reps had reverted to their own—often paper-based—systems for tracking customer data. As a result, “We didn’t know how to get in touch with our customers and didn’t know what equipment was out there,” says Buhl. “If a district sales manager left the company, we had no clue

what was going on in that geography.”

Although the lack of a centralized customer database was tolerable while AMF’s global business was booming, the boom ended abruptly when the Asian market collapsed in 1998. Suddenly, AMF could no longer rely on outfitting new bowling centers

After spending an afternoon with his sales reps “grunting out” the requirements for a system to capture customer information, Vice President of IS John Fottrell realized that “they didn’t have consensus about what they wanted.”

in Asia for its growth. To make matters worse, an aggressive expansion campaign increased the number of AMF-owned bowling centers in the United States from 125 to 415 in two years, making it the world’s largest owner and operator of bowling centers. Because AMF sells equipment to its own centers at cost, the company effectively decreased its universe of profitable sales prospects. Between 1997 and 1998, worldwide sales of AMF bowling products plummeted from \$300 million to \$150 million.

Aiming for a Perfect Game

John Walker, who became vice president of North American sales in June 1998 (and is now senior vice president of global sales and service), wanted CRM for three reasons. First, he was eager to improve customer service by facilitating internal communication among reps, the technical support help desk and the credit department. Reps were often getting blindsided on sales calls to customers wrestling with technical problems; other times, customers targeted for big sales were being hassled by the credit department. Second, Walker wanted to pursue targeted marketing of customers instead of blanket promotions. Third, he was convinced a CRM system could help reps better manage their time and accounts—and facilitate smoother transitions when reps leave. But for CRM to do any good, the system had to be easy to use.

With Y2K looming in 1999, CRM took a backseat to replacing legacy back-office systems. The company did, however, have to pick software for the tech service help desk—and did so with CRM in mind, says John Fottrell, vice president of IS. Upon

evaluating several products, he says, AMF chose Applix on the basis of its strong help desk functions, strong CRM functions (the ability to keep track of contacts, maintain detailed customer profiles and manage quotes) and its capacity for multilingual, multicurrency support.

Once the legacy systems were replaced, Walker pressed for a CRM initiative and won the go-ahead to invest \$325,000 on the SFA project. From the beginning, it was not an IT project but a business initiative, says Fottrell, who points to Walker's active involvement as critical to the system's success. Walker had watched a previous employer waste \$1 million developing a CRM system that users hated because the project was driven by what management and IT liked rather than what users wanted. To avoid that trap—and to address the skepticism of veterans of the ill-fated Notes system—Walker and Fottrell involved sales reps from the start. In October 2000, they convened a kickoff meeting, which included six sales reps, Systems Architect Harsha Nagaraj and an Applix project manager. Walker set the tone by making it clear that it was the reps' opinions that counted most.

Reps were encouraged to be frank about what they hated about previous systems and what they wanted from the new one—and they didn't always agree. "We grunted it out for an entire afternoon—after which I was sure we were not going to be successful," says Fottrell. "It shocked me that they didn't have consensus about what they wanted."

During three or four sessions, the reps, with the help of IT, hammered out specs for the system and gave feedback on rough prototypes. And the reps themselves came up with the idea to use PDAs; putting Applix on Palm devices would let them collect customer data in the bowling centers easily and discreetly.

But using the Palm meant overcoming some technical hurdles (such as getting the data to sync with headquarters) and upgrading to the Palm-enabled version of Applix. The system is also limited by the smaller screen size, the amount of information that a Palm can hold and the need to

TECHNOLOGY AS A TWO-WAY STREET

BY WENDY S. CLOSE

THERE ARE A NUMBER OF REASONS why sales technology implementations fail. Topping the list are projects initiated with unclear goals, metrics and expectations. AMF wisely identified specific goals for implementing CRM.

A second reason for sales-force automation (SFA) failure is a poorly defined or flawed sales process, and third is a lack of commitment from top executives and sales managers. At AMF, the North American sales vice president championed the project and convinced the CEO to invest in CRM.

The fourth reason for failure is the lack of strong end user salesperson buy-in. AMF involved sales reps in system development from the start. The next wise move AMF made was to listen to its reps' idea of using PDAs. PDAs, although convenient, lack the sales application depth and range of data that can be deployed on laptops. However, deploying a subset of sales features on a PDA with data synchronization can conveniently supply limited information anywhere and at anytime in the field, and allow mobile reps to quickly and conveniently collect information. Most sales organizations that have deployed PDAs are using them for generic contact and calendar information, and these applications have failed to produce any real ROI. AMF was smart to deploy a custom application on the PDA designed specifically for sales.

Finally, AMF is using data collected by salespeople to run marketing promotions that directly benefit the salesperson's bottom line. Too many organizations turn their salespeople into data collectors for marketing without providing any benefits back to sales like better qualified leads. Overall, AMF exemplifies a number of SFA best practices that others should seek to emulate.



Wendy S. Close, a CRM research director at Gartner, is a CRM generalist with 11 years of experience. She can be reached at inquiry@gartner.com.

minimize sync time.

Nagaraj says that Eric Weimer, a district sales manager based in Richmond, Va., who had been using a Palm to track customer data on his own, understood the constraints and convinced the other reps that they needed to limit the number of fields and the size of the drop-down menus. For example, to collect data on pinpotters (the machines that reset the pins), some reps wanted to include every model that AMF had ever made in the drop-down menu. Weimer argued that a salesperson just needs to know whether a customer has an AMF pinpotter; in most cases, the model doesn't matter

since the main selling proposition is when it's *not* an AMF product. So the group whittled a drop-down list of 22 choices to eight critical items. Reps also asked to see the status of all of their customers' sales orders. But because a typical order includes 80 to 100 line items, that would have dramatically increased sync time and overloaded the Palms. Instead, they decided to give reps just information on shortages (when AMF can't immediately supply everything ordered) and warranty orders (when warrantied equipment breaks and replacement parts must be shipped quickly). This keeps reps in the loop when customers have problems.

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To help fine-tune the application, Fottrell and Nagaraj enlisted Weimer to represent the tech-savvy rep's viewpoint. They also got input from Dave Cykoski, a longtime AMF rep based in Jacksonville, Fla., "because we thought he would never give up his Daytimer," says Fottrell. "We knew that the rest of the salespeople were somewhere in between."

At the December 2000 sales meeting, Weimer led his colleagues through a hypothetical day in the life of an AMF rep using Applix, showing them how they could use the system to focus on the customers most likely to spend money, as well as how to

restructured debt in March 2002.)

Even so, Buhl made collecting customer data a priority. By December 2001, reps had collected data on 80 percent of AMF's customers, he estimates. Through a series of pull-down menus on their Palm, the remaining 21 North American sales reps could easily fill out or update a customer's equipment profile "on their way from entering the bowling center to the front desk," says Buhl. "It's less than a five-minute event." Syncing data with headquarters proved to be a breeze: When reps dial into headquarters, they just put their Palm in the cradle

customers feel like AMF understands them. In the past, all promotions went to each one of the 6,000 U.S. bowling centers. Since AMF can now send a mailing to just the 500 or 1,000 accounts for whom it would be appropriate, the cost savings per promotion is approximately 60 percent, according to Buhl. Perhaps more important, AMF is no longer annoying customers by sending them irrelevant offers—or alienating those who'd just purchased the product in question a week or two before.

In the field, reps are using Applix to focus their efforts on selling customers what they're most likely to buy and to zero in on the customers who are most likely to be the biggest spenders. Before Applix, the Northeast district's Keller would have wasted time trying to sell a product that was on special to bowling centers that didn't need it. With Applix, he says, "I can focus on the correct customer with the correct product." Using this strategy, Keller managed to sell \$212,014 worth of bumpers in a single month—surpassing his fourth quarter 2001 quota of \$110,206 by 92 percent. Cykoski too has had good results with the Palm. Midway through 2002, his sales were already approaching his 2001 total.

Because reps can gather customer data much more efficiently, they can call on more customers. Keller, for example, says he can now visit one more account each day he's on the road. And sometimes that extra stop can really pay off. One day Keller decided to visit a military base because Applix data showed that all of the equipment in its bowling center was old and no AMF salesperson had visited recently. Turns out the bowling center was about to close and move to a new location—and Keller ultimately closed a \$400,000 deal at the new facility.

"This gives us an advantage over the competition," Keller says. "Knowing what's out there, and who has what and what they need saves our time. The proof of the pudding is that we use it." **CIO**

AMF is no longer annoying customers by sending them irrelevant offers—or alienating those who'd just purchased the product a week before.

update prospect or customer information. He also illustrated how they could use their laptop (which they'd keep in their hotel room) to view messages from the credit department or see their customers' unresolved calls to the help desk. Weimer told his fellow reps, "You'll have the opportunity to say, 'I know you talked to AMF a couple days ago, and we didn't get back to you, but this is the answer.' You become more valuable, and customers will want to talk to you more than someone doing a cold call."

Weimer deftly fielded reps' questions and challenges. "He was right back at 'em with some real, specific business reasons as to why it was done the way it was done," recalls Fottrell. "There's no way an IT person could've had the same credibility."

The reps got their Palms and training on the Applix software at the March 2001 sales meeting. Because AMF was about to enter Chapter 11, reps were understandably distracted. AMF's aggressive investment in bowling centers in the late '90s had left it with what Buhl calls "a broken balance sheet." Before filing for bankruptcy in July 2001, the company laid off 171 people, including two district sales managers. (It emerged with a

attached to their laptop and push the Hot Sync button. That synchronizes data on their Palm with the SQL server in Richmond—a process that takes 10 minutes tops, according to Nagaraj.

Although Cykoski still hasn't thrown out his Daytimer, he gives the Applix system a B grade (he admits that if he devoted more time to exploring what it can do, he might give it an A).

No More Gutter Balls

Now that AMF has a central repository of updated customer data, the company can send targeted promotions to customers most likely to respond to them. Buhl reports that two out of three promotions run this year using data gathered through Applix have boosted sales. Following a January promotion on pinspotters, AMF's year-to-date pinspotter revenue reached \$403,300 in April, up from just \$9,000 for the same time period in 2001. Likewise a February promotion on automatic scoring equipment yielded \$601,000 in revenue for that category through April, up from \$252,000 last year.

The ability to target promotional mailings saves the company money and makes

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INTEGRATION SURVIVAL GUIDESM

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BrainStorm Group's

Integration Survival GuideSM

The official publication of the eBusiness Integration Conference Series

I am thrilled to introduce the inaugural issue of our Integration Survival Guide Series—a handbook dedicated to providing you insight to proven integration strategies being implemented by leading world-class organizations as well as insightful guidance from integration “thought leaders.”

While it's not possible to address all of your integration questions within the confines of this issue, I hope that you'll find this guide, as well as our executive forums, to be a valuable resource as you look to solve the integration challenges facing your own organization.

About the eBusiness Integration Conference

Co-produced with Giga Information Group, the eBusiness Integration Conference Series is the leading forum specifically designed to provide business and IT leaders with solutions to serve the full spectrum of e-business integration challenges.

Led by Conference Co-Chairmen Ken Vollmer, Research Director Integration Strategies, Giga Information Group and William M. Ulrich, President, Tactical Strategy Group, Inc., the eBusiness Integration Conference Series features dedicated tracks covering Web Services, Business Process Management (BPM), eAI/Legacy Integration, Business-to-Business Integration (B2Bi) and Data Integration.

The eBusiness Integration Conference Series has received endorsement from more than 60 industry organizations including representatives from leading analyst/research firms, publications, associations, user groups and solution providers.

Finally, I would like to thank the sponsors of this guide and our eBusiness Integration Conferences for demonstrating their commitment to addressing the integration challenges facing business today.



Best regards,

Gregg V. Rock
President and Founder
BrainStorm Group, Inc.
gvr@brainstorm-group

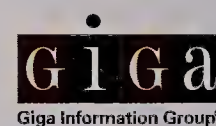
About BrainStorm Group

BrainStorm Group, Inc., a full service conference and event management company, based in Northboro, Mass., was founded in 1997 by Gregg V. Rock. BrainStorm Group's Executive Management Team has more than 75 years combined experience in the development, production and management of conferences and events for forward thinking executives. In addition to proprietary events, BrainStorm Group's EMS (Event Management Services) Division offers a set of integrated services in the areas of conference development and sponsorship, event marketing and management.



About Giga Information Group

Giga Information Group is a leading global technology advisory firm that provides objective research, pragmatic advice and personalized consulting. Emphasizing close interaction between analyst and clients, Giga enables companies to make better strategic decisions that maximize technology investments and achieve business results. Founded in 1996, Giga is headquartered in Cambridge, Mass., and has more than 15 offices throughout the Americas and Europe, as well as offices in Latin America, Asia/Pacific and the Middle East. For additional information, visit www.gigaweb.com.



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Integration *Über Alles*

IT Budgets Rise and Fall, but the Integration Challenge Remains Strong

By Tom Field

Think of everything we've seen these past four years since BrainStorm Group's inaugural eBusiness Integration Conference.

Y2K came and went, and so did the initial Internet business blast. The stock market has risen to astronomical heights, then plunged to unimaginable depths. We've gone from a full-fledged IT staffing crisis to a glut—with no layover in between stops. And we've all reevaluated our business and personal priorities in light of Sept. 11.

And yet the integration challenge remains.

No matter how business, technology and the economy have changed since 1998, we're still exchanging tips on how to best integrate disparate systems, services and staffs. And according to *CIO* Magazine's audience, integration issues aren't just top-of-mind—they're atop the priority lists. Witness:

- According to *CIO* Magazine's fall 2001 "State of the CIO" survey respondents, the top spending priority was integrating systems and processes (36%), followed by implementing new technologies (26%) and staff retention/hiring/training (25%).
- *CIO*'s June 2002 Tech Poll reveals that, despite the stagnant economy, 28 percent of executives surveyed listed operational effectiveness within their organization as the number

one factor that would increase their technology spending. In other words, integration—effective integration, that is—is building IT budgets.

Of course, the one big difference between now and four years ago is that integration then was still a means of establishing competitive advantage. Today it's a baseline expectation—that no matter how or when your employees, customers and partners want to deal with you, your systems and services will be integrated to deal with them. Seamlessly.

A daunting mission? Absolutely. But hardly a solo flight. For every CIO just embarking upon an integration journey, there's another who's been there, done that, and calculated the ROI. The goal of this guidebook—in fact, the mission of the eBusiness Integration Conference Series—is to share case studies, metrics and tips from other CIOs and experts to help you gain ground on your own integration challenges.

We may well still be talking about integration four years from now. But with a little luck and a lot of collaboration, we'll be focusing not only on the *process* of integration, but also on the *prosperity* that will result.

Tom Field, an award-winning journalist and former Executive Editor of CIO Magazine, is Director of Content Development for CXO Media Inc.'s Custom Publishing group.

Today integration is a baseline expectation—that no matter how or when your employees, customers and partners want to deal with you, your systems and services will be integrated to deal with them. Seamlessly.

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November 18-19, 2002

The Mobile Enterprise Strategies Seminar Series
September 25, 2002
November 20, 2002

Being Prepared for Integration

By Ken Vollmer

The need for organizations to collaborate more effectively is the driving force behind the high level of interest in integration technology that we see in the marketplace today. Integration improves the effectiveness of collaboration efforts by automating the exchange of information between groups working on common tasks or processes, ensuring that the appropriate data is available to support either human decision-making or process automation efforts.

At Giga, we believe the success of the organization of the future will depend to a large degree upon the availability of

electronic integration links to customers, suppliers, strategic partners and other key entities in its value chain. These links will enable "harmonization" of business processes between the parties and result in faster cycle times, lower cost of operations and improved customer service. Consequently, the organizations that have such links in place—and use them effectively—will have a significant advantage over competition that lacks such capability.

However, establishing these links is no small task. There are a myriad of issues that must be coordinated with outside groups, making inter-organizational integration one of the

Integrating the Uncharted Territory between

The journey to create a real-time, inter-enterprise community is forging ahead, but in most cases the roads, bridges, intersections, street signs and driving directions are still being developed. Even worse, the rules of the road are constantly changing. However, one company has successfully completed this journey and offers a path for others to follow.

Traversing the path to real-time, community integration

When a leading manufacturer needed to integrate hundreds of its trading partners across five continents, it was faced with many questions:

- With off-the-shelf B2B integration software limitations, can we develop economically scaleable and functionally ready community integration/management software?
- Is our IT team resourced to track and resolve thousands of supply chain integration exceptions and alerts?
- How can we focus on building the inter-business process scenarios and the related application analytics, when we are consumed by integration hurdles?
- Should we dedicate capital and resources to build a community inte-

gration infrastructure—a strategic, but non-core operation?

- How do we lower the barriers to trading partner participation?
- How will all the data formats adhere to ours? If not, are we ready to build/maintain thousands of data maps?
- How can we ensure the data's validity/integrity on a continuous basis?



The Integration Utility™

In order to answer these questions and overcome the challenges faced, this leading manufacturer searched for a solution to enable an integrated community of diverse business partners, including ongoing operations and support.

The company's existing environment included legacy systems isolated in point-to-point connections between the company's distributors and con-

tract manufacturers, with little visibility into the businesses that supply those trading partners.

Based on this, the goal was then to transition this environment to a dynamic hub that would feed its business applications with forecast, supply, demand, and inventory process information. The depth of the business community integration from this hub would generate vital alerts about disconnects in supply commitments, partner data mismatches and overdue action alerts, among other results, but above all would address two of the most important challenges:

Lowering barriers to participation is the first priority to get started

Many of the questions and issues listed above dealt with participation, which broadly break down into three solution areas: convince the partners of the need to participate, assess their readiness, and connect them to the manufacturer's private trading community. The first, while often overlooked, was critical to the success of the community. Dozens of IT departments across multiple cultures needed to be convinced of the business need for the

most complicated projects that an IT organization can undertake. Technology issues include identification and implementation of the appropriate integration technology; mapping of key business processes across organizational boundaries; establishment of the required communication links; implementation of security and change management procedures that include the establishment

The success of the organization of the future will depend to a large degree upon the availability of electronic integration links to customers, suppliers, strategic partners and other key entities in its value chain

of backup and recovery procedures covering distributed transactions.

While these tasks can be daunting in themselves, companies frequently find that managing related business issues can be even more problematic. Questions arise such as, "Who leads the overall integration effort between several large firms when each of them

Continued on Page s12

You and Your Business Community

project. Community support was achieved through clear communication and education concerning not only the process information, but also the business drivers and benefits for the partner. The second task, a thorough readiness assessment, was necessary to not only effectively schedule partner on-boarding, but also to identify which partners needed assistance, whether technical or business. The last task, connectivity, was the demanding, vital effort of connecting and testing not only the technology stack, but also the data and process elements to ensure data quality and repeatability.

Data integrity is the single biggest ongoing challenge

Once the manufacturer was integrated with its trading partners, their community required ongoing, 24-7 support that ensured data integrity and security, and also managed exceptions and errors in order to provide guaranteed delivery. The life cycle of the integrated community also needed to be managed—providing service platform enhancements, implementing new processes and facilitating changes in technology, protocols and standards when needed. The solution ensured the ongoing support for evolving pro-

ocols and standards (such as Web services, EDI, RosettaNet, ebXML, OAG, etc.) without the manufacturer bearing the burden of constantly assessing its trading community's IT infrastructure.

A journey's rewards

The benefits of an integrated community are many—including enabled development of new capabilities and organizational knowledge, enablement of previously "impossible" business processes, exposed data integrity issues in legacy ERP systems, and exposed inconsistent business practices across the value chain.

In the case of this leading manufacturer, they found that building their integrated community with services from a third party, Viacore, Inc. enabled them to focus on improving their inter-business relationships and application analytics without being consumed by integration hurdles. Now, they are looking to leverage their integrated community operations across other business areas in the organization with Viacore's help.

Viacore's mission was to integrate multiple layers of the company's business community, creating a true real-time

extended enterprise that provides a dependable view of the company's supply chain eco-system, and to support the ongoing activities and lifecycle of that community.

Viacore works with leading companies seeking real-time visibility within their business communities. The company specializes in private community integration services called BusinessTone™, and as such, has seen first hand the challenges companies face as they attempt to integrate hundreds of business partners. BusinessTone operates as an integration utility, allowing companies to avoid the risks, delays, costs and limitations that come from purchasing B2B software, creating massive infrastructure and deploying the resources necessary to support round-the-clock community integration operations.

If your company needs to create a real-time, extended enterprise community, contact Viacore to learn from a company that helps leading organizations cross the no man's land of business community integration.

For more information on Viacore and BusinessTone, see **www.RealTimeVisibility.net**

Making a Business Case For Legacy Transformation

By William M. Ulrich

Senior executives are reluctant to sponsor IT projects that involve modifying legacy application architectures. This reluctance manifests itself in IT strategies that sidestep legacy applications in favor of non-invasive integration (e-business application integration, or EAI), application packages, new development and outsourcing. While these options offer certain benefits, they rarely facilitate the systemic changes needed to synchronize application architectures with evolving business requirements.

Legacy transformation, in conjunction with EAI, packages and new development, has the capacity to meet a variety of information-related requirements in less time, for less money and at a lower risk. Legacy transformation facilitates the analysis, enhancement, consolidation and redeployment of data and application architectures to meet business-driven IT requirements. Why would an enterprise pursue a transformation strategy? Consider the following scenario as just one example of where legacy transformation supports

business-driven IT requirements.

An enterprise is running overlapping billing systems across multiple business units and geographic regions. Critical information is redundantly and inconsistently stored within multiple databases. Customer information takes weeks to synchronize, is often wrong and frustrates customers. Functional redundancies have resulted in inefficiencies that cost the company millions of dollars annually. Non-invasive integration could never synchronize the inherent redundancies within this environment, and no application package or new development project could duplicate the complex processing capabilities found within existing applications.

One transformation-oriented alternative consolidates enterprise data and application functionality across all customer management functions. Step one involves documenting relevant applications, data structures and business functions in a centralized repository. This repository serves as a

Continued on Page s14

Maximizing the Value of Legacy Systems

Jacada Integrator: Enabling organizations to rapidly and easily achieve real-time access to legacy systems

End-to-end enterprise application integration is paramount to IT organizations today. With businesses looking to reduce costs and increase profits, leveraging investments in existing technology is an attractive alternative to rewriting or replacing these legacy systems.

Quick & Reilly, a FleetBoston Financial Company and one of the nation's most successful investment firms, has built its business on providing customers and brokers with real-time investment and account information, as well as point-and-click securities trading. Achieving this success required integrating modern web-based systems with a back-end

mainframe ADP record-keeping and reporting system.



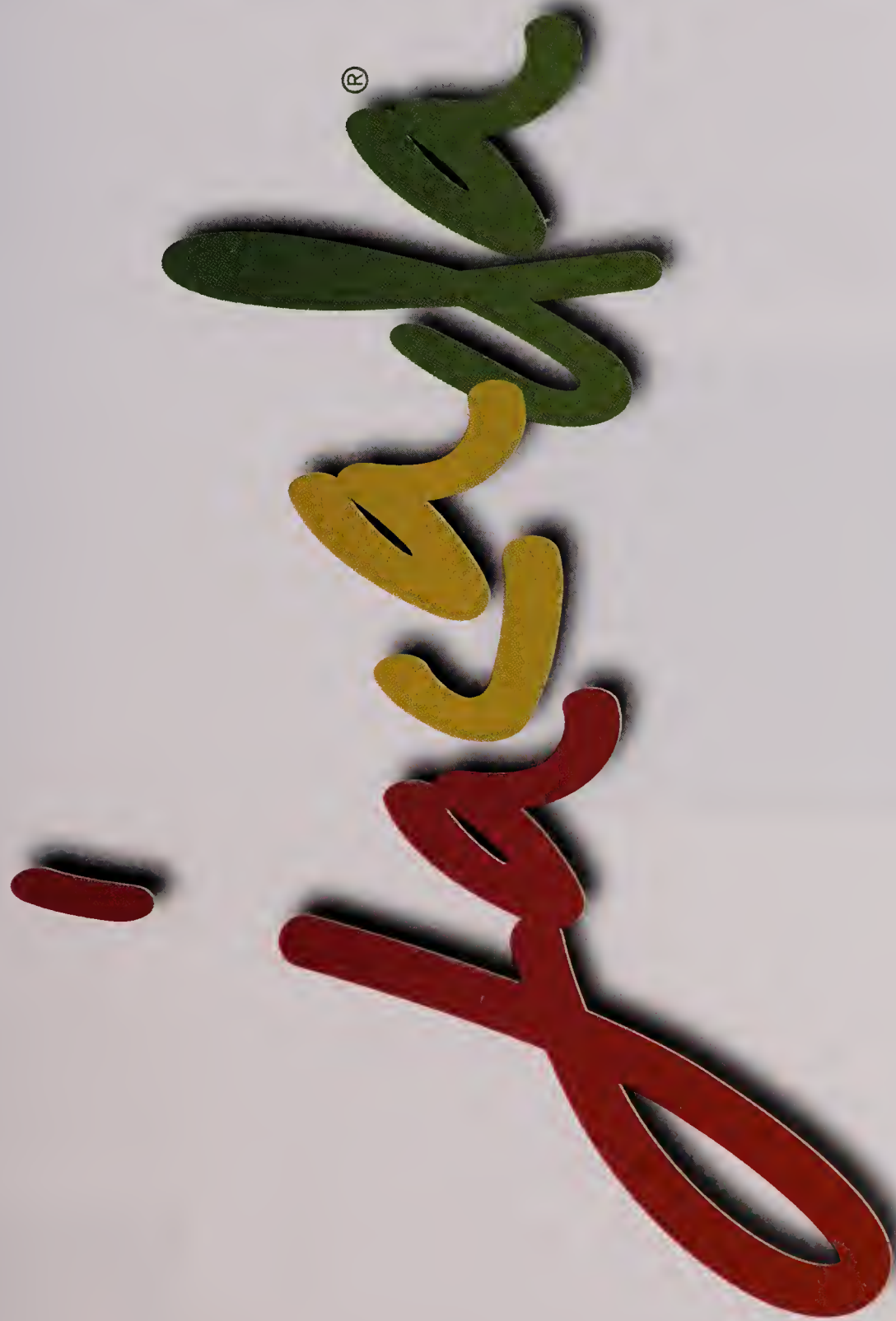
Using Jacada® Integrator, Quick and Reilly and its affiliate, Fleet Securities, who jointly undertook the project, realized efficiency immediately. By automatically synchronizing their Web sites and internal CRM applications with the mainframe legacy system, the affiliate companies eliminated redundant data

entry, and were able to significantly cut transactional labor.

"Using Jacada Integrator, data-entry transactional activities are being shifted over to call center agents so our brokers can now spend twice as much time on customer relationship management," says Alan Grometstein, Vice President of Information Technology at Fleet Securities, charged with overseeing the Quick & Reilly project. "And in our Web-based mutual fund area, we are able to accommodate significantly higher transaction volumes without additional overhead. This shift in our entire brokerage business model is due to Jacada Integrator."

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Is EAI the Killer App For Web Services?

By Uttam Narsu

As the negative hype around web services accelerates, vendors and early adopters cast about for a savior—the proverbial “killer app”—that will free up money for on-hold IT projects. Recently, e-business and application integration (EAI) replaced the deposed B2B as the prospective new killer app, attended by the requisite media and vendor hype. While we could ask the question “Is EAI the killer app for web services?”, a better question is really, “Does web services need a killer app?” The answer to both questions is a qualified “No.”

Today, web services is little more than a standards-based (SOAP, WSDL and UDDI¹) pipe, a descendant of CORBA and DCOM, whereas EAI adds value on top of a pipe (e.g., routing, transformation, and publish/subscribe). Web services is easier and cheaper to implement than DCOM and CORBA ever were because of better agreement among the vendors, which results in better tool and infrastructure support than DCOM or CORBA ever had. Being XML-based provides enormous flexibility advantages at the cost of some performance advantage (which will gradually be overcome). These advantages cannot add up to a killer app according to the classic definition of a killer app as formulated by Downes and Mui (1998): “A new good or service that establishes an entirely new category and, by being first, dominates it, returning several hundred percent on the initial investment.”

EAI exists, it can't be something new, and therefore web services can't “establish it as a new category” and thereby dominate it.

Current adoption of web services is highly varied, from simple informational web services, to creating access paths from a portal to stove-piped applications, to legacy access, reuse and extension. Web services adoption patterns will be largely driven by business need, vertical industry and the organization's adoption profile toward technology. There is no current killer app for web services.

EAI exists, it can't be something new, and therefore web services can't “establish it as a new category” and thereby dominate it.

But perhaps there's another valuable way to look at killer apps. Suppose we define it as, “You have to do something old in a quantifiably better way, or do something that couldn't be done before.” Seen in this light, the large investments in web services technology by the platform vendors make sense. We are seeing a rebuilding of EAI technology on top of a web

services foundation, and efforts to create standards to ensure that such a web services-based EAI will remain broadly interoperable across platforms. Yes, integration is hard work; web services don't alter that basic fact, which means we foresee a slow but steady adoption of web services. But the value proposition of this new web services integration, or WS-EAI, to honor classical EAI, will be fundamentally different, since it brings to the forefront the term “services,” a weak concept in present day EAI. Service-orientation allows web services to offer a longer-term vision whereby business functions within and across

enterprises interoperate without regard to their technological underpinnings. As such, they will, when mature, provide a significant step forward for integration.

Uttam Narsu is Web Services Track Chair at the eBusiness Integration Conferences and Vice President at Giga Information Group. Uttam is an expert in application development, specifically XML and Web Services, as well as Java, Object-oriented development and lightweight methodologies. Uttam will be available for One-on-One Meetings at the upcoming eBusiness Integration Conference Series being held September 23-25, 2002, in New York and November 18-20, 2002, in San Francisco.

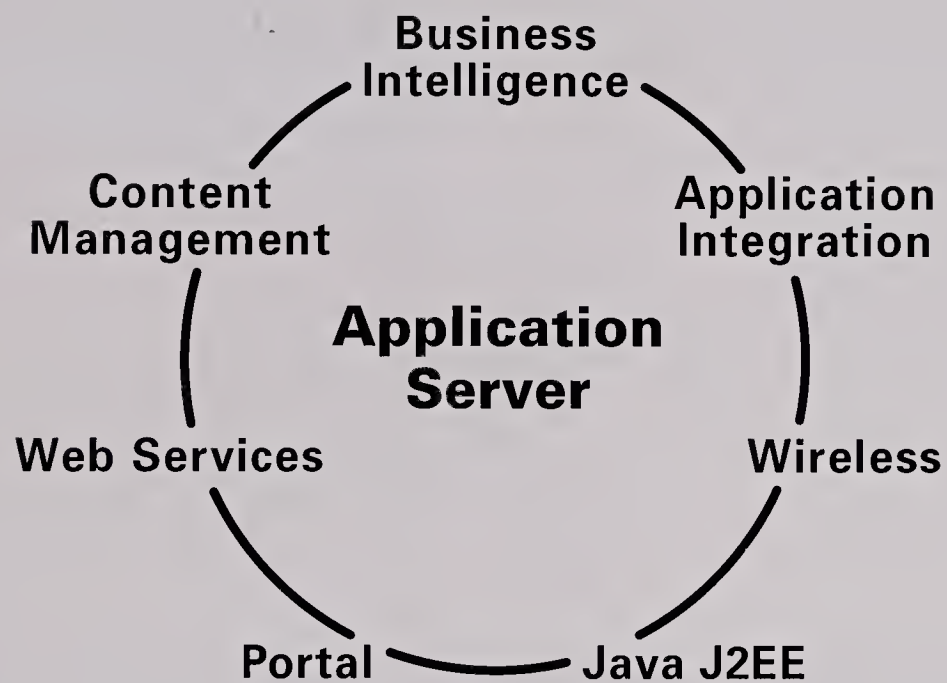
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¹Simple Object Access Protocol (SOAP); Web Services Description Language (WSDL); and Universal Description, Discovery and Integration (UDDI)—enable Web services to talk to one another. (See “The Basics,” 1 April 2002, *CIO Magazine*)

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Leveraging IT for Business at The Home Depot

An Interview with Phil Wilkerson

The main advantage of integration is the ability of a business to deliver increased value. For The Home Depot, this means driving down the costs of doing business by integrating their internal systems and the links to business partners and customers. Phil Wilkerson, Director of Information Services for the \$53 billion home improvement retailer, explains how The Home Depot is integrating its systems and what other 21st-century retailers need in order to compete.

"The overall goal is a repeatable framework that allows the exchange of information among internal associates, partners, suppliers and ultimately the customer base," Wilkerson says. "It is a business-critical issue for The Home Depot to achieve good integration throughout the enterprise."

The factors for success are strong leadership, good technology providers, and a well-disciplined, executable plan for implementing these initiatives. Architecture is critical, says Wilkerson. "You need to have a commitment around the data of your business. What are the reporting relationships and what are the rules around the information? Then you can more easily put together a framework that will allow a *seem-*

ingly seamless flow of information to take place. Our goal as IT professionals is to keep the integration below the water line so the business can flow freely."

One of the big challenges to integration at The Home Depot is the development of a common vernacular, such as the definition of what a customer is versus what a vendor is, thus achieving consistency across the entire business. Common standards for all the outlets are necessary. There are three important steps that need to be taken:

- decide what needs to be integrated;
- determine the integration tasks;
- implement the process management across the enterprise, which can be difficult because a business or division is seldom run as a science, but more as an art.

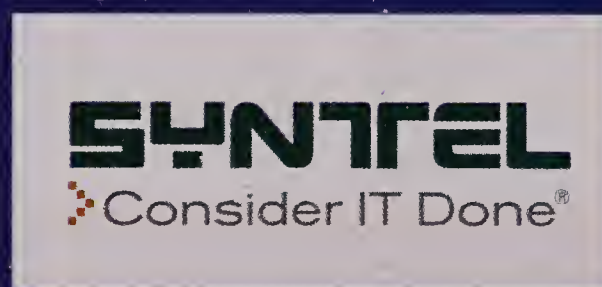
The Home Depot has made a commitment to process improvements and is actively training its team members based on Six Sigma disciplines. All leaders are expected to understand the concepts and help drive process changes company-wide with the support of every associate.

Continued on Page s15

Syntel integrates two countries, 5,300 dealers, and 300,000 parts into one seamless system

When one of the Big Three auto makers needed to integrate their Canadian and U.S. parts systems under very tight budget and time parameters, they turned to Syntel. The customer had worked with Syntel for over a decade, but had never gone offshore for a technology engagement. This complex project touched the enterprise at numerous points, including supplier ordering, parts setup, warehouse replenishment and dealer ordering. It would require review and analysis of more than 4,700 programs, consisting of nine million lines of code. Business processes associated with the new system also needed to be integrated.

Clearly, this project demanded the expert project management and timely turnaround that only Syntel's Global Delivery can provide.



Because all of the integration needed to take place without disruption of service, Syntel executed the fixed-price project in two phases: first replacing one country's parts supplier base with the other country's system, then

integrating that with the dealer systems of both countries. Ultimately involving a team of more than 100, located both on-site and offshore, the engagement was split into 51 subprojects, meeting the critical requirements in all six functional areas of the project and numerous applications.

Syntel's technology teams across the globe completed 80 percent of the subprojects ahead of an aggressive schedule. The rest were completed on time and the seamless system was launched successfully. Having proven that Global Delivery not only works, but can work remarkably efficiently, Syntel was chosen to be this customer's first approved offshore outsourcing partner.



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Continued from Page s5

would prefer to be in control?" or "How do you develop the level of trust between organizations that is needed to support real-time process integration of critical business activity?" And these questions must be resolved to everyone's satisfaction, or the inter-organizational integration efforts may be doomed from the start.

The current economic climate mandates that technology solutions being implemented today must be able to adapt to systems already in place and provide lasting value well into the future. However, rapidly changing integration technology and the shifting vendor landscape work against integration solution longevity and require that IT managers pay close attention to new developments in order to minimize any potential negative impact. Organizations need to be prepared for the future. In the case of integration, this means having the ability to integrate key business processes with their trading partners.

The current economy won't last forever, and when it does turn around, the organizations that have diligently pursued

the expansion of their integration capability will be in the best position to take advantage of the rebound.

Ken Vollmer is eBusiness Integration Conference Co-Chairman and Research Director of Integration Strategies with Giga Information Group. He covers trends and issues related to all forms of business-to-business integration (B2Bi) and has assisted hundreds of companies with their B2B implementation projects. Ken will present at the eBusiness Integration Conference Series in New York, September 23-25, 2002, and in San Francisco, November 18-20, 2002.



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Sapient and the United States Marine Corps

Business Challenge

The Marines' existing supply chain included more than 200 individual logistics systems with almost no integration among them. The same processes were used to acquire and manage virtually all types of inventory, regardless of an item's strategic importance. Demand-signal information was not shared up and down the supply chain, nor was total-asset visibility available for such items as inventory and equipment.

That lack of information meant the U.S.M.C. needed a lot of inventory—a requirement that tied up significant capital resources that could be used for other strategic purposes, such as new-weapon development. The U.S.M.C. wanted to streamline its supply chain and reduce the amount of stockpiling needed.

Business Results

Through innovative "validation sessions," Sapient delivered a detailed operational architecture that reduces the 200-plus logistics applications to a much smaller number of integrated web and wireless applications. The anticipated outcomes are a leaner support structure that will free up 1,800 Marines from logistics duties and make

percent; inventory cost savings of between \$125 million and \$180 million every year; and a 35 to 50 percent reduction in order cycle time for products and services.

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them available for other purposes; faster deployment capability resulting from a 20 to 70 percent reduction in the tonnage it needs to ship; a one-time reduction in inventory of 45 to 61

David L. Ferris, Jr., Product Group Director, Information Systems and Infrastructure, United States Marine Corp Systems Command, will present "Streamlining Logistics and Cutting Costs: An Application Consolidation" at the upcoming eBusiness Integration Conferences in New York, September 23-25 and San Francisco, November 18-20.

Attend the Project Rescue Seminar: Transforming a Troubled IT Project into a Success at the upcoming eBusiness Integration Conferences in New York, September 25 and in San Francisco, November 20
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WARNING:

Industry Alert:

- Only 28% of technology projects are on time and on budget.
- 49% are materially off target.
- 23% are cancelled.*

IMPORTANT FACTS:

- Technology is never simple.
- Success depends on clear objectives and a proven approach.
- Most technology projects fail due to poor project management and a lack of clear business objectives.

* Source: *The Chaos Chronicles*, The Standish Group, 2001

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Continued from Page s6

road map for ongoing integration, development, outsourcing and transformation initiatives.

Subsequent steps involve creating a phased consolidation plan that initially focuses on cross-functional, customer-related business processes. Consolidating these processes allows support functions to more readily synchronize customer requirements, and also produces design input to subsequent data and application consolidation steps.

Data consolidation includes rationalizing and consolidating data discrepancies across business units, data structures and applications. Subsequent steps would consolidate and modularize common functions across customer applications. Each project phase results in a more streamlined and consistent customer management capability. Ultimately, multiple billing and customer support units could be collapsed into a common subset, saving the enterprise millions in user support costs and lost customer revenues.

The newly consolidated application architecture could be componentized, web-enabled or incorporate new functionality as needed. EAI tools can also be used to facilitate front-end integration requirements. This is a risk-averse

approach because IT is simply redeploying proven application functionality within a retooled business and application architecture.

While legacy transformation may not apply to every IT project, it is frequently omitted from IT planning sessions. Incorporating transformation options into these planning efforts offers management another option for meeting complex business demands in a timely, cost-effective manner.

William M. Ulrich is eBusiness Integration Conference Co-Chairman and President of Tactical Strategy Group, Inc. William is a well-known strategic planning consultant and author. He specializes in organization and information integration strategies and has more than 22 years of IT industry experience. William will be presenting at the eBusiness Integration Conference Series taking place September 23-25, 2002, in New York and November 18-20, 2002 in San Francisco.



BUSINESS PROCESS INTEGRATION? **What does this mean to you and your business?**

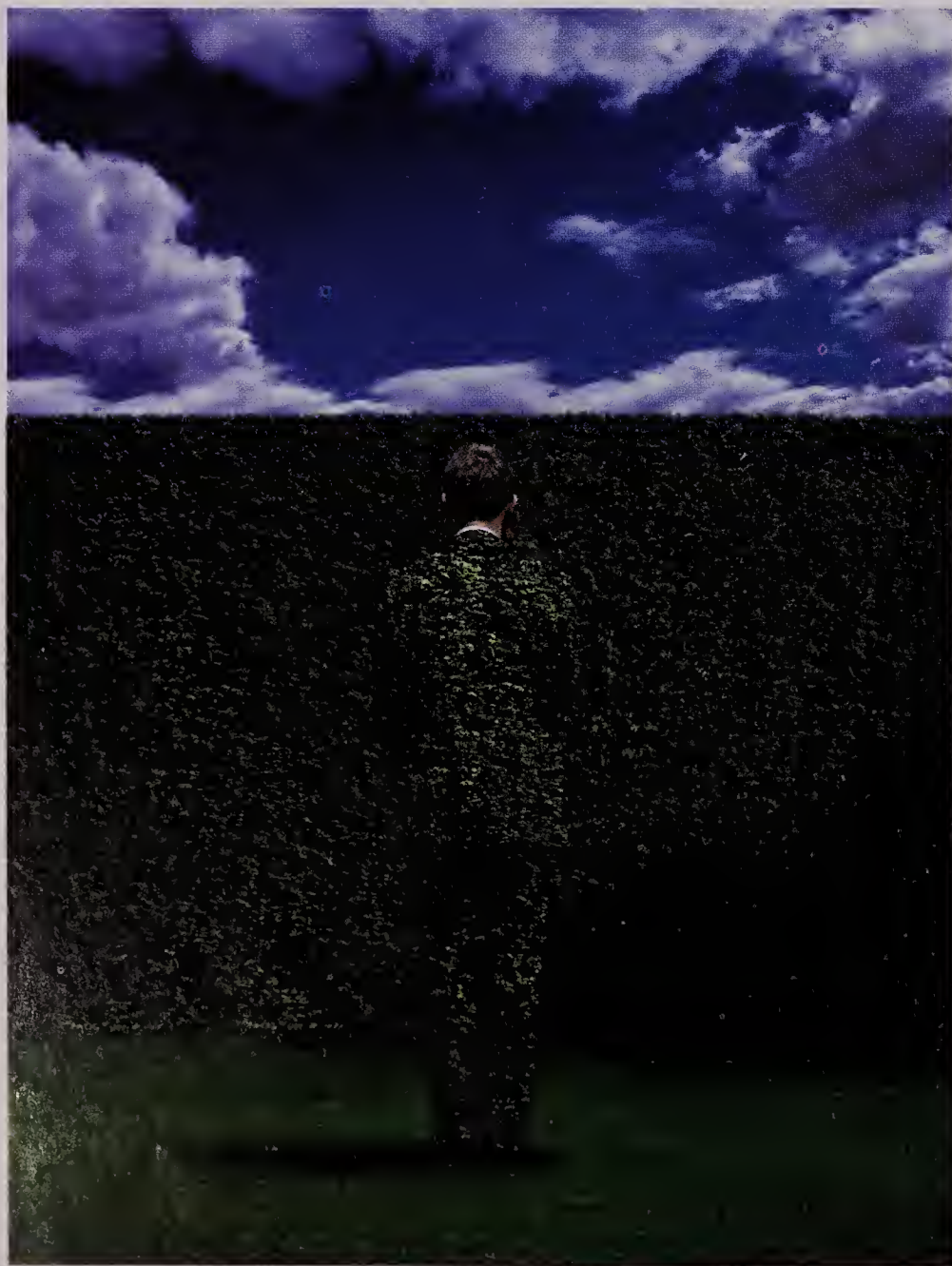
Time Savings
Improved Customer Service
Accelerated Business Processes
Enhanced Agility
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Easily Adaptable
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Continued from Page s10

The Home Depot is starting to design and develop Web Services as a part of its information delivery, seeing this as something to bolt on top of its EAI framework. As the technology matures, Web Services will eventually make its way down to the business process and business rules levels. The Home Depot is also testing Web Services for applications to talk to common frameworks such as portals from Epicentric and IBM.

The Home Depot is continuing to grow its business, but there is greater emphasis now on optimizing what it already has in place. The business is engaged with IT and forging essential partnerships for mutual success and customer satisfaction.

With more than 22 years of experience, Phil Wilkerson has worked in all facets of IT at several Fortune 500 organizations. In his position as Director of IS at \$46 billion retailer The Home Depot, Mr. Wilkerson is directing the implementation of new People Systems, e-Learning and the enterprise portal effort. Hear Phil present a case study on building collaborative relationships at the upcoming eBusiness Integration Conference in San Francisco, November 18-20, 2002.



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for XML/SOAP-based data messages sent over HTTP/HTTPS or Java MS (Java™ Message Service).

The Sun ONE Integration Server, EAI Edition, a component of the Sun ONE Integration Family, transforms data by means of an XSL processor that utilizes XSLT (a Web standard) to transform XML documents. This translates data elements among multiple dialects of XML. The Sun ONE Integration Family offers technology adapters for common component technologies, custom, mainframe and packaged systems and contains component

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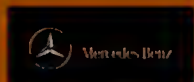
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HOW TO GET YOUR HOUSE IN ORDER

BY MERIDITH LEVINSON

In the Sunbeam Hattiesburg, Miss., warehouse, VP of IT Ed Janowsky (right) and Director of IT Applications Mitch Long have standardized on business processes in lieu of management systems.

Everyone knows that every warehouse should run on the same system and be integrated seamlessly with the business's back end. But what everyone knows and what everyone can do are two different things.

In a perfect world,

every company that operates multiple warehouses would run them like Staples does theirs. The \$10.7 billion office superstore's retail distribution center in the sleepy town of Killingly, Conn., for example, is typical of all four of Staples' warehouses. It's typical because five years ago Framingham, Mass.-based Staples standardized on a single warehouse management system (WMS) from EXE Technologies that integrates with the rest of the company's operational systems.

Inside the 307,060-square-foot Killingly warehouse, forklifts, pallette jacks and clamp trucks weave through aisles of metal shelving. Turret trucks, guided by sensors in the concrete floor, heft wooden pallets stacked with boxes by the dozen and, instructed by the company's inventory management system, deposit them in exactly the right spot on the shelves. One and a half miles of conveyor belt grinds along a serpentine path bearing cardboard boxes of everything from binders and three-hole punches to lamps and file cabinets. Women in jeans, T-shirts and sneakers scan pick tickets with laser guns, which instantly populate LED screens on the long, multilevel metal racks before them with numbers that indicate the quantities of PDAs, boxes of pens, mobile phones and toner cartridges they need to pick. The entire operation runs 24 hours a day without a hitch from Sunday to Saturday—shutting down for about six hours every Sunday morning.

Reader ROI

- ▶ Why standardizing on a single system is not always an option for businesses
- ▶ How it's possible to standardize on business processes instead of business systems
- ▶ Best practices for minimizing the problems created by running multiple systems

PHOTO BY DANIEL LINCOLN

The benefits that Staples gains from working on a single platform are many splendors. Running just one WMS enables the company to establish consistent procedures for distributing merchandise to stores, transfer products from one distribution center to another and have a dynamic, enterprisewide view of its inventory. Jeff Klingensmith, Staples' vice president of retail distribution operations, says that while it's hard to put an exact fig-

running two different WMSs puts pressure on the IT staff at Sunbeam because they have to write additional interfaces between the company's two WMSs and its back-end systems. "We need multiple people with different skill sets to support those products," says Long.

In addition, running multiple WMSs can lengthen a company's fulfillment cycle, according to Anthony Venuti, vice president of

CDM, a consulting company based in Cambridge, Mass. Also, Long says, Sunbeam's inventory accuracy varies because it is running multiple WMSs. And if the WMSs are not well integrated with the order processing system, orders can get lost because there's no consis-

tency as to how orders are fulfilled and how the facilities are run, says Venuti. To top it all off, when you're not running a common WMS across distribution centers, it's harder to move warehouse employees from one location to another because every time you do you need to train them on a foreign system. Businesses also miss out on the benefits of shared methodologies and best practices for using the system and for running the warehouse.

But despite those problems (or, rather, because of them), Cott, Nexcom and Sunbeam have developed best practices to mitigate the cost and disadvantages of running multiple, unintegrated warehouse systems.

To guard against errors, Cott's Neary compares information across his company's three warehouse management systems and two ERP systems, and conducts hand counts of the finished goods to ensure that the inventory data is consistent. And, where possible, he writes interfaces between his WMSs and his ERP systems so that the two can share information without the need to enter data manually.

One of the ways Sunbeam keeps operational costs at bay is by replacing the printed instructions for picking merchandise with radio frequency (RF) technology for advanced material handling that tells warehouse employees exactly what to pick and where. The RF devices eliminate the need for them to have to stop at a central location in the warehouse to get their pick assignments. To prevent the warehouse from running out of stock, Sunbeam is in the process of standardizing its replenishment method, which it calls assemble to order (ATO). The company is setting up standard, mathematically calculated safety stock levels, reorder points and reorder quantities across its 12 facilities. Standardizing on business and warehouse processes, even without standardizing on WMSs, also lets Sunbeam transfer warehouse employees and operations from one location to another without incurring training costs, and it offers the company greater visibility into its supply chain.

"The more standardized the approach, the more common the terminology that's utilized, the better the different [warehouses]

When battling with multiple systems, sometimes your best strategy will be to rely on good, old-fashioned human sweat.

ure on the money his company saves, "I see savings in licensing, maintenance agreements and in the [cost of] custom configuration of base [WMS] code."

Ah, if only every business was born fully integrated, with warehouses and corporate headquarters and factory floors feeding into ERP systems, providing perfect, seamless visibility at every point in the supply chain. Then all a CIO would have to do is tilt his chair back, put his feet up and dream up ways to turn his company's IT into revenue streams while delegating to some systems operator the task of making sure that the conveyor belts of data are running smoothly.

But life, as we know, is not like that.

LIVING IN THE REAL, (DIS)INTEGRATED WORLD

In reality, many companies, including household product manufacturer Sunbeam Products, Cott beverage company and Nexcom, a \$2 billion mass merchant that supplies the U.S. Navy with everything from clothes to the products that clean them, are forced to run multiple WMSs, either because they've acquired companies that deploy different packages themselves or because decentralized business models give their various warehouses the liberty to decide which WMS is right for them.

"The vanilla-flavored world where all systems are the same just isn't an immediate reality for a company like Cott that's growing very rapidly through acquisitions and organic growth," says Douglas Neary, CIO of the Toronto-based company.

Running more than one WMS causes headaches. Make that migraines. Ed Janowsky, vice president of information technology at Sunbeam in Boca Raton, Fla., says that running two WMSs in 12 warehouses compromises his company's efficiency and drives up its operational costs. "You have a duplication of software licensing and maintenance fees," among other expenses, he says.

Mitch Long, Janowsky's director of IT applications, says that



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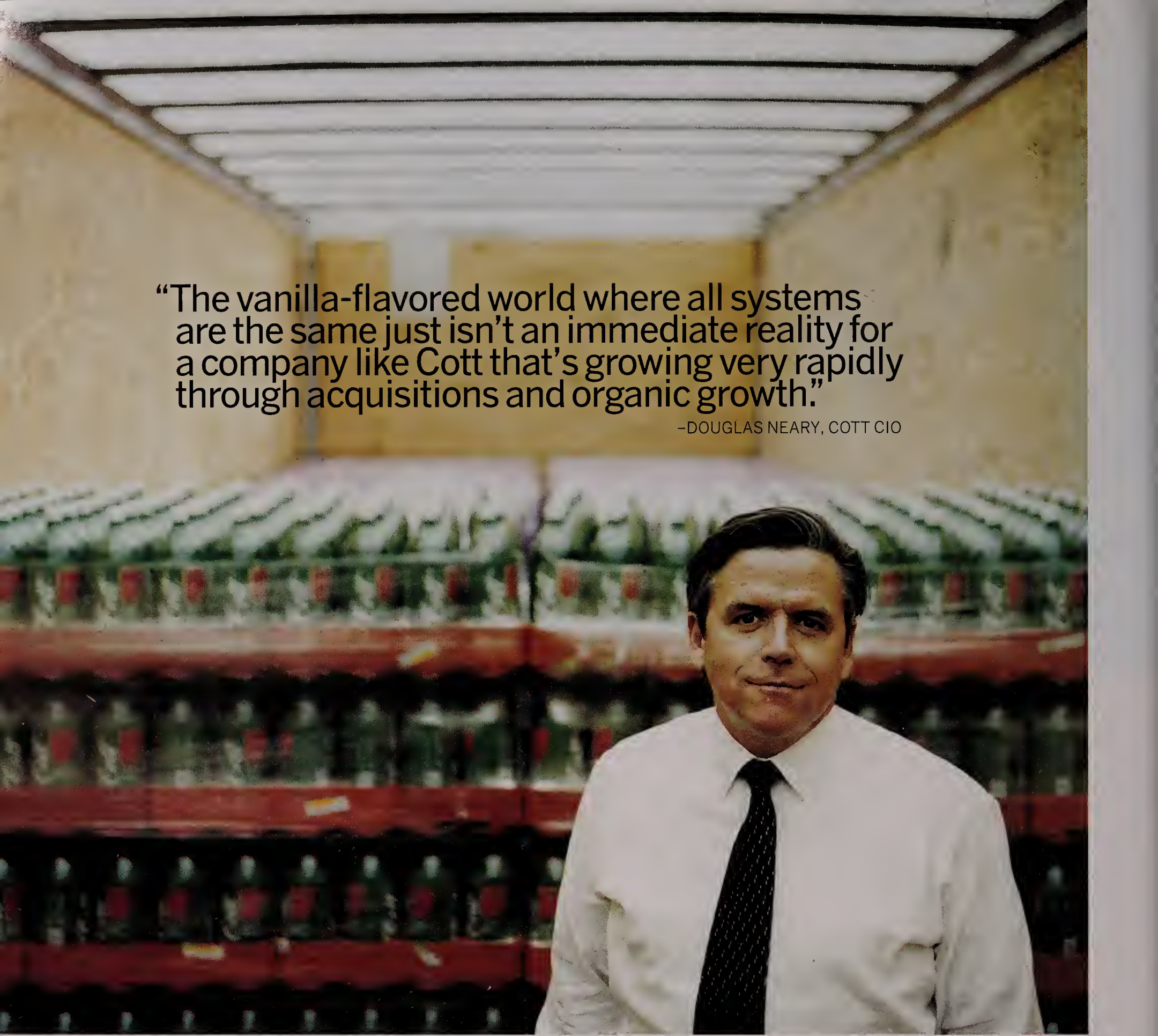
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“The vanilla-flavored world where all systems are the same just isn’t an immediate reality for a company like Cott that’s growing very rapidly through acquisitions and organic growth.”

—DOUGLAS NEARY, COTT CIO

can talk with one another, the better the visibility the people in corporate have into what exactly is in those locations. Then they can do a better job of forecasting and planning,” says Janowsky. And though it may not sound like a terribly high-tech best practice, Kean Westcott, director of field systems for Nexcom, and Cott’s Neary both advocate visual checks and manual counts to ensure both the accuracy of shipments and the accuracy of the data ultimately being fed into the WMS and the ERP system.

Those methods for dealing with multiple WMSs are applicable to any situation in which a business finds itself unavoidably dependent on disparate systems that are less-than-optimally integrated. “A CIO can do this kind of standardization in any particular aspect of the business,” says CDM’s Venuti.

BEST PRACTICES FOR RUNNING MULTIPLE SYSTEMS

Find a tool to cross-reference your data. One of the biggest hassles associated with running multiple WMSs is having to make them interface with an ERP system—a task that gets even more complicated when it’s necessary to interface multiple WMSs with multiple ERP systems. Such is life for Cott and Sunbeam. To compensate for a lack of integration, data has to be manually keyed from one system into the other. But the more systems into which data must be entered manually, the greater the risk of screwing up. And when the numbers are wrong, products can get logged into the wrong physical locations in the warehouse; warehouse

PHOTO BY DEREK SHAPTON

employees can't find goods they need to ship because their instructions tell them the blue widgets are in lot #18 when they're actually in lot #21; inventory counts can be inaccurate, and the business risks overcharging or undercharging, short-shipping or over-shipping customers for merchandise they may not have ordered.

So if the business is running multiple WMSs that don't interface with its ERP system, the CIO must establish some checks and balances to make sure that the data is identical across systems.

One such check and balance Cott's Neary uses to prevent data from being corrupted is to triangulate, as he calls it, inventory counts from three sources: the data captured from scanning the bar codes of finished and raw materials, the hand counts of goods in the warehouse and the numbers in the ERP system. By triangulating, the 46-year-old CIO means comparing. He says the company double-checks to make sure that all billings in the ERP system match all shipments in the WMS and that all goods received match all invoices. "When you're able to triangulate data, your systems can identify inconsistencies right away," he says.

To compare billing, shipping and invoicing information across different systems, Neary has configured his systems so that they automatically synchronize with one another on a regular basis and feed a data warehouse. He uses Web-based business intelligence applications from Hyperion (Essbase and Analyzer) to recognize any anomalies in the data. Inconsistencies between the ERP system and the WMS are automatically flagged when information is extracted from the data warehouse, and transformed and loaded into the business intelligence application. Neary uses translation tables and cross-reference tables to ensure that similar brands, package types and flavor types coming from different systems all map appropriately to the rules established in the business intelligence application.

And in about half of Cott's warehouses, Neary has written interfaces between the legacy ERP system and WMS. Though writing interfaces is one of the headaches of having to support multiple WMSs, having the interface has eliminated the need to manually rekey inventory transactions into the ERP system, he says.

Standardize wherever and however you can. Sunbeam runs two different WMSs, as well as a few custom programs for its 12 distribution centers. For Sunbeam—like a lot of companies—running multiple WMSs is the lesser of two evils. Although doing so drives up cost, right now the company has chosen not to standardize because of the high implementation cost. Vice President of IT Janowsky says that for Sunbeam, the benefits of standardizing on one WMS don't outweigh the cost. During the past several years, the company has been in acquisition mode. If it had to implement a standardized WMS in each new warehouse it took over, that would be all he'd have time and money to do, Janowsky says. Instead, Sunbeam standardizes on the business process end.

"Standardization [of business and warehouse processes] enables

us to put together a simple, straightforward planning and training process that's easily transferable to various locations," says Janowsky, addressing the problem of training workers when they move from one warehouse (and one WMS) to another.

For example, the the company is currently deploying a single ATO process across all of its warehouses. That means each warehouse has the same processes for handling shipments of incoming goods and raw materials and for handling outgoing shipments of finished goods to its retail customers.

As for replenishment, the distribution centers all use the same process for calculating safe stock levels so that they don't run out of goods. So if the company had to move an employee who worked on the loading dock of the facility in Hattiesburg, Miss., to the facility in Waynesboro, Pa., the individual wouldn't have to learn a new process for getting shipments onto trucks, for unloading shipments into the distribution center or for reordering merchandise.

Standardizing on a single ATO process effectively allows Sunbeam to establish best practices for running its warehouses as well as benchmarks for comparing each facility's performance—two activities that can be impossibly difficult, or simply impossible, when a company is running multiple WMSs, according to CDM's Venuti. If a company's five distribution centers are running different WMSs, he says, they'll all have different perspectives on how a facility should be run, how orders should be fulfilled and what the best staffing levels are. You can't benchmark their performance, since they're managed inconsistently.

Janowsky disagrees. "Having a standard ATO process helps us measure the effectiveness [of each warehouse], and by having a standard approach for measuring our effectiveness, we can tell what the proper staffing requirements, storage requirements and overhead expenses would be for a particular location," he says.

To further facilitate moving warehouse employees from one

Tips for Dealing with Multiple Systems

1 Compare data in your warehouse management system (WMS) with the same data in your ERP system, and verify both with manual counts.

2 Synchronize your WMSs with your back-end systems on a regular, if not real-time, basis.

3 Establish standard data formats across systems and standards for how data is stored and sorted so that data is consistent across WMSs as it's fed to back-end systems.

4 Eliminate multiple data entry points.

5 Hold employees accountable. Tie their performance evaluations to their track record on physical counts.

6 Focus on streamlining, improving and standardizing warehouse operations and business processes.

—M.L.

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location to another, Long says, the IT department has configured software from J.D. Edwards that's used in several of the distribution centers so that the menu options to print pick tickets, shipping labels, shipping confirmation, print manifests and bills of lading are identical across locations.

"The closer you get to the cookie-cutter approach, the more interchangeable and useable you make people," says Janowsky.

If all else fails, get your hands dirty. When battling with multiple systems, sometimes your best strategy will be to rely on good, old-fashioned human sweat. If you can't trust your systems to generate proper orders, use your employees to double- and triple-check shipments and inventory levels. After all, you can hold them accountable for mistakes and foster a "we try harder" spirit among them much easier than you can a computer.

Westcott says Nexcom, with the U.S. Navy as its sole client, has its employees pull cases off the conveyor belts, scan the labels, visually check that the product in the cases corresponds with what's on the label and verify that the quantity of items in the case matches the packing slip. That labor-intensive process is the price one pays for running

peer resources

To integrate or not to integrate your systems? Darwinmag.com, CIO's online sister publication aimed at the nontechnology executive, takes the integration point of view in **PUTTING TWO AND TWO TOGETHER**. Find the article at www.darwinmag.com, or go to www.cio.com/printlinks.

more than one WMS, but it's cheaper than ticking off the U.S. Navy by messing up the orders.

Nexcom, which operates two WMSs and uses its merchandising system to run seven distribution centers and four smaller warehousing facilities all over the globe, also employs inventory control groups that go around the warehouse counting products in various locations. "In most cases, that's done in reaction to a person going to pick a product and finding that it's not there," Westcott says.

Cott CIO Neary also advocates manual counts and holding employees accountable for them. No matter what an employee's position is in the warehouse, everyone has to do manual counts, and their performance is measured based on whether their manual counts match up with the counts in the WMS.

"You'd be amazed at how well this works," says Neary. "When you hold people accountable to a standard, they do it." **CIO**

If you have suggestions for minimizing the disruptions and costs associated with running multiple enterprise systems, share them with Senior Writer Meredith Levinson at mlevinson@cio.com.

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HOW TO Plan FOR THE SHORT TERM

Being quick, nimble and reactive is the order of the day. Start by getting rid of the long-term mind-set. BY CHUCK MARTIN

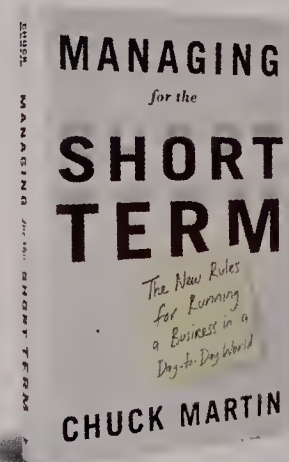
The concept of managing for the short term has traditionally suffered from a stigma when contrasted to the notion of being a long-term visionary thinker. Short term was considered bad, while long term was considered good. Long term connotes something lasting, well thought-out and perhaps even capable of leaving a legacy, while short term brings to mind shallow, reactive and even shoot-from-the-hip thinking. When employees are working as fast as they can and believe that short-term thinking means reacting to only the crisis of the day, it's understandable that a manager might question the idea of focusing on the short term.

However, the reality is that managers today have to be more oriented toward the short term to be better synchronized with their organization's needs. In addition, that orientation allows an organization to be better in tune with the changing needs of customers and their desire for quick gratification.

Once a manager gets over the negative perception that anything short term is inherently bad, short-term execution and long-term vision can begin to be aligned.

Beyond being demanded by the current business environment, managing for the short term can also have distinct advantages for the manager who understands how to use such methods to support the company's overall strategy:

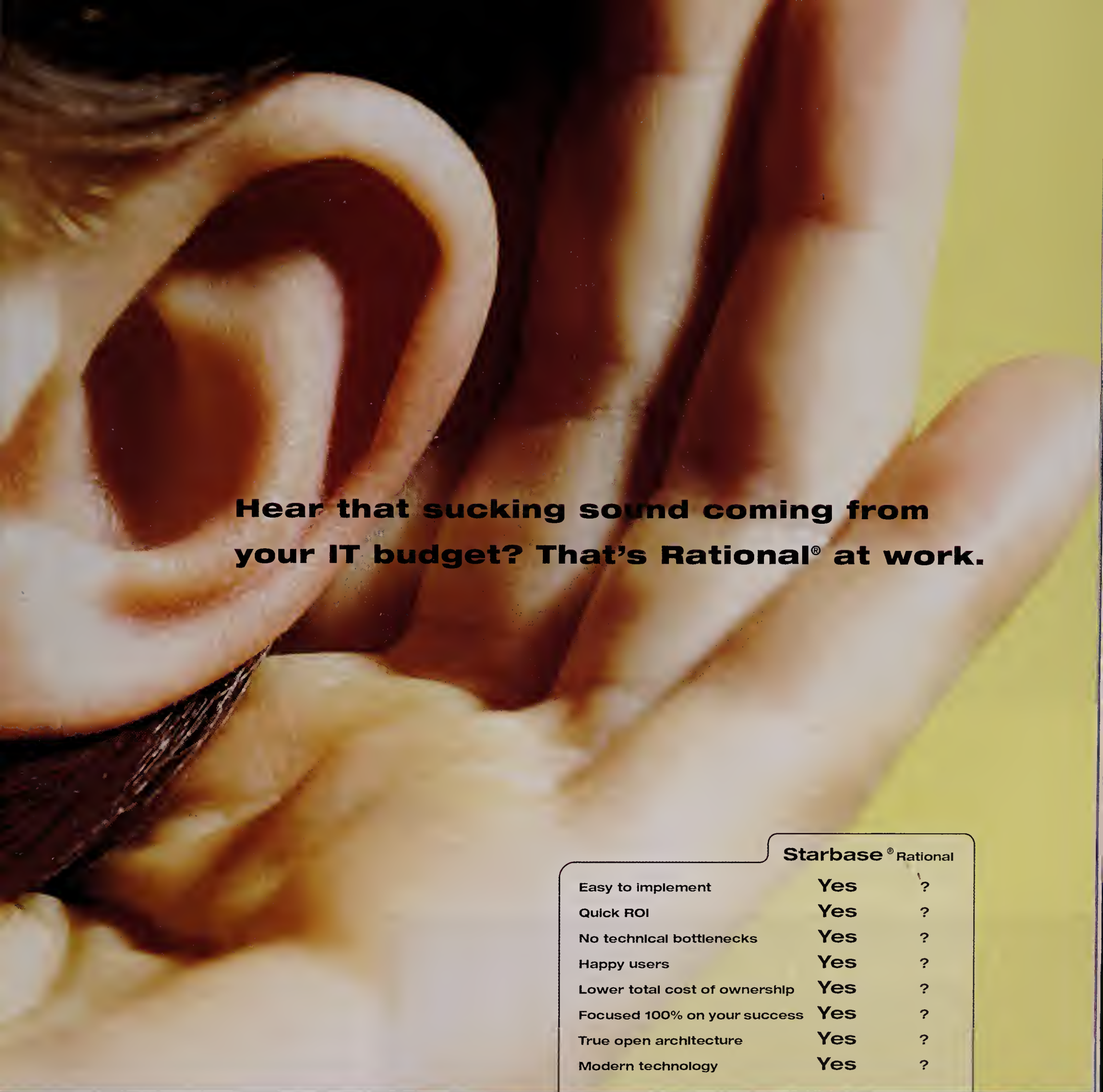
- Because it focuses on quantifiable information, managing for the short term is based not on guesswork but on reality. It is, by definition, market-influenced, as customer contacts and inter-



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actions actually can cause management to adjust if the organization is set up to do so.

- By providing incremental forward motion, it offers the opportunity to correct errors quickly before they become disasters.

- By producing documented immediate results, it offers opportunities to garner support needed to implement projects on an ongoing basis.

- By focusing on information flow, it provides companies with a fresh influx of ideas, constant updates, and the ability to stay abreast of and capitalize on change.

Calendar Versus Event Planning

Any company's strategy must be accompanied by planning for how to achieve it. However, managing for the short term means that the planning process must be an evolutionary one. And it must recognize that to move forward given the short-term demands of the business environment, organizations must achieve in incremental, short-term steps.

Traditional planning has been calendar-based. A corporate mission is developed, usually at the top. The word is handed down, and off everyone goes—often back to being distracted by the day-to-day events that can very quickly make the original strategy seem distant or even irrelevant.

Of necessity, strategic planning has to

become more event driven—not just by major events, which happen relatively infrequently, but by the cumulative impact of smaller events.

At Redix International, a software development company with offices in Freehold, N.J., and Walnut Creek, Calif., President and CEO Randall King meets weekly with his key managers; those meetings constitute the company's planning process. "We have a long-term plan for items we want to incorporate into the software," says King. That development plan gets modified perhaps three to four times a year but not based on any particular schedule. Rather, the shifts in direction occur based on discussions during the weekly meetings about what demands from clients reveal about where the marketplace is heading.

When the development plan shifts, the company's chief technical officer not only redirects programming efforts but makes

MANAGERS AND EXECUTIVES alike need to understand that saying they manage for the short term is no longer a negative but a necessity—and can be an effective way to function.

sure to explain to the software developers why the change is necessary and how it affects the company's metrics for success. That ability to integrate responses to market demands with clear communication about how changes in the plan relate to the company's overall strategy is a classic example of event-driven planning.

Organizational Pace Versus Individual Pace

Across the board, senior executives and middle managers believe that organizations make decisions primarily for the short term. By contrast, these same executives and managers see themselves personally as making management decisions on a medium-term basis. The obvious question that raises is how in sync managers are with the pace of their own organization. At a time when companies must deliver quarter-by-quarter, a primary focus beyond that time frame can be problematic.

When managers perceive a difference in focus between themselves and their organization, it can become a self-fulfilling prophecy. Even if an organization is managed well for the short term, managers who don't perceive that it is, or who believe that managing for the short term is a negative, can become dissatisfied and impede progress. If managers do not have a clear understanding of the forces driving the need to manage for the short term and how their decisions roll up into the company's overall plan, any need for rapid change is more likely to be perceived as arbitrary, not well thought-out, short term and therefore negative.

That difference in perception is another distinction between short-term management

Planning Styles

Long-term planning is anchored to the calendar. Short-term planning is more agile, taking advantage of unforeseen events.

CALENDAR-DRIVEN PLANNING

- Based on time
- Produces a document
- Is declared
- Focuses on goal
- Creates obstacles to change once strategy is set
- Creates strategy implementers

EVENT-DRIVEN PLANNING

- Based on events
- Produces a sequential process
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- Focuses on process
- Creates environment for constant change
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and managing for the short term. Short-term management can also be seen as shortsighted; truly, managing for the short term isn't.

Because they may be better positioned to see short-term moves as pieces of a larger puzzle, senior executives sometimes have an advantage over managers in the context of long-term strategy. Executives tend to see the environmental forces driving the need to make short-term plans—the shareholders, the global environment, the capital markets. By contrast, lower-level managers may see only what looks like an arbitrary directive from the top and follow their own plans for succeeding in the business, which may be based on their contact with customers or their personal desires.

The challenge is to increase everyone's comfort level with short-term managing by providing the strategic context for it.

That was one of the refreshing aspects of the early Internet startups, which changed—sometimes radically—as the market evolved and shifted. The ability to change rapidly was considered a positive in most of those companies. Granted, they were entering new territory, where gaining early market share could determine leadership positions, and experience offered few lessons in how to proceed. One of the lessons those companies taught the business world is the value of having the flexibility to change with market changes and the ability to integrate those rapid changes with the planning process.

That degree of flexibility means that an organization needs to be able to manage the inevitable inefficiency as projects and the resources already devoted to them are abandoned or reassigned. That is part of the price required for being more efficient in pursuit of the overall strategy.

Strategy: A Jumping-Off Point

Strategic planning may be most successful when accompanied by scenario planning—asking the traditional What if? “It means looking at your business and deciding if the trees really grow to the sky or not,” says Michael Franks, director of strategic planning for O’Sullivan Furniture;

peer resources

CAN YOUR COMPANY'S FINANCIAL PLANNING GET ON THE SHORT-TERM TRACK?

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with \$394 million in annual revenue, the Missouri-based company is the second-largest manufacturer of ready-to-assemble furniture in the United States. “Most people who have to forecast do so based on what’s happened historically. If you do so, you’re assuming all trends are linear, and very few things in business are. If you don’t have any tool other than history, you’re at the mercy of things that have no precedent,” says Franks. Examining what you might do if all plans go south means that the company has alternative paths roughly traced instead of having to bushwhack untrodden forest.

To perform that examination, Franks says, “You have to really understand the assump-

tions that underlie your original plan.”

The fact is that without the short term, there is no long term. The company overall is forced to deliver quarter-by-quarter without much breathing space. However, unless they are tied to an overarching vision that all managers understand, those results will not be relevant to the long-term direction.

One example of a company that aligns its vision and strategy with its ability to manage for the short term is MasterCard International. “Being flexible and being able to respond to problems and opportunities is important,” says MasterCard International President and CEO Robert W. Selander. “While we may have set objectives, new things come about, and you need to have a reprioritization. You have to walk away from budgeted items sometimes.”

MasterCard set a new strategy in 1997 that is still in place. “But you add to it, rather than redo it,” says Selander, who reorganized the company so that it could take advantage of new developments, such as e-business and projects that require nurturing. Selander modified the processes for reaching the organization’s goals while keeping them

The CFO as Sheriff

Don't shoot the one who's only enforcing the company's budget

THE CHIEF FINANCIAL OFFICER is often seen as the one who won't fund a new project that the proponent is certain will help the organization become more productive, more efficient or more profitable. When that money isn't forthcoming, the CFO frequently is the one who takes the blame.

However, that's like going after the sheriff for enforcing the law. Like the sheriff, finance is merely applying numbers to the corporate strategy; the “law” he's enforcing is the company's budget.

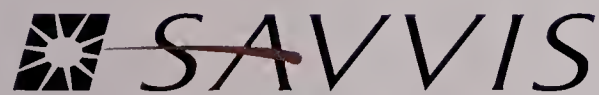
To effectively manage for the short term, any executive who wants his operation to produce demonstrable results quarter-by-quarter must look at the information flow within the corporation, how individual managers are enabled to use that information, the integration of corporate strategy and day-to-day “street truth,” and how all of these factors can be used to improve the organization's numbers.

All of these processes must also feed into how the corporate strategy is developed and executed. If they are aligned, the budget the CFO has to enforce will be a truer reflection of what the company wants to achieve.

—C.M.

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linked to the strategic objectives. “We’re recycling through our objectives more than once a year,” he says. “An individual will come in and say, I was working on this, but things changed, so we adapt. If you have a strategy you believe in, you can motivate your people. If you’re successful at one thing, you do more of that.”

Attitude Adjustment Time

Clearly, working with two types of planning requires a certain amount of attitude adjustment. Managers and executives alike need to understand that saying they manage for the short term is no longer a negative but a necessity—and can be an effective way to function.

Many managers feel that they work all day just “putting out fires” and that they “don’t get any actual work done.” In fact, putting out the fires can be a major benefit to the organization. It’s easy to forget that

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even if it doesn’t feel productive personally, a doused fire that allows a subordinate to become more productive again or helps colleagues tackle their work can benefit the organization as much as a task that helps the individual achieve his or her personal targets and goals.

No one questions the need for firefighters to respond quickly to events when they occur. Corporate firefighters are doing the same thing, and they can be the most valuable people in the company. The trick is to tackle the fires that are the most threatening to the company’s immediate needs.

Firefighters often battle blazes by digging

a trench or setting afire a swatch of forest to prevent a fire from spreading; the line is called a firewall (just as the software that helps shield a company’s computers from the outside world is called the corporate firewall). It may be helpful to think of the daily firefighting done within corporations as digging the firewall that will keep the fire from bringing down the entire forest. In some cases, putting out a fire may be the one thing that most benefits the company.

Managers become frustrated because they often feel that the short-term demands placed on them are a negative and that the short-term stuff isn’t as important as long-term stuff. They fail to recognize that in today’s business environment, managing for the short term is a reality with which everyone is having to come to terms. **CIO**

Chuck Martin is a former vice president of IBM and founding publisher and COO of *Interactive Age*.

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Who's on Your Network?

Intrusion detection systems can work, but they require time and money

BY D.F. TWENEY

Edited by Christopher Lindquist. Send your thoughts and ideas for future columns to clindquist@cio.com.

ARKANSAS STATE UNIVERSITY is asking for trouble. The school is in the midst of a major network upgrade that will eventually bring gigabit-speed network capacity to every dorm room and office on campus—making the network a

tempting playground for hackers, says Greg Williamson, associate director of information and technology services at the Jonesboro, Ark., university.

For Williamson, a network intrusion detec-

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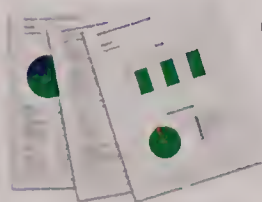
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tion system (IDS) from Cisco is the key to staying on top of the network—and its potential abuses. Whenever any one of these IDS components spots a potential security threat—a virus, say, or an impending hacker attack—it notifies a central management console. If the threat is serious enough, the system automatically pages IT staff, who can deal with the attack by shutting off access, reconfiguring systems, and even identifying a hacker's dorm room and calling campus security.

IDS—What Is It?

Like Arkansas State, many organizations are finding that firewalls, antivirus software and user authentication policies aren't enough to keep networks safe. That explains the growing market for intrusion detection technology from established vendors such as Cisco

relies on network sensors that monitor packets as they go by. Typically, a network-based IDS comprises sensors at network entry points (alongside a firewall, for instance) or at the boundaries between subnets with different security levels (such as between your LAN and your data center).

A host-based IDS, by contrast, monitors activity on specific servers or mainframe hosts by keeping an eye on the integrity of critical files, or by monitoring specific operating system events (such as suspicious error messages or unusual server processes).

Similar to virus scanners, network- and host-based IDS solutions also frequently make use of signature scanning, looking for unique data fingerprints that identify certain types of attacks.

The weakness of this approach is that signatures must be constantly updated to

alarms—as many as thousands per day in extreme cases.

“There's a tendency by IDS vendors to show that their products work,” says Lloyd Hession, chief security officer for Radianz, a New York City-based provider of IP network services to the financial industry. Hapless IT managers are then faced with a “massive overload of information,” Hession says. Every one of those alarms is potentially something that your security staff will have to evaluate to determine whether it's a legitimate use of your network or a hostile attack.

Over time, the staff that monitors your IDS will learn both how to sort real attacks from false alarms as well as how to tune the IDS to reduce false alarms. Arkansas State's Williamson says his staff initially got paged by their IDS 30 to 40 times per day, but after the system had been running for a few months, the number dropped to just two or three per day. “It can take six months to tune an IDS to the point where you've eliminated false positives,” says Michael Rasmussen, director of research in information security for Cambridge, Mass.-based Giga Information Group.

The Vendor Hype

Naturally, IDS vendors aren't sitting still. Relatively new IDS companies, such as OneSecure and Intruvert, are combining signature- and anomaly-based intrusion detection techniques to increase the intelligence of their systems and even block attacks as they happen, rather than simply alerting the IT staff to the presence of attacks. Other vendors, such as ForeScout, use statistical analysis of your network's normal traffic to automatically identify anomalous packets—a sort of self-tuning IDS. Still others, such as TippingPoint Technologies and Sourcefire, are throwing hardware at the problem, by building very

Most intrusion detection systems err on the side of caution.

Systems, Enterasys Networks and Internet Security Systems; new players including IntruVert, OneSecure and Recourse Technologies (Recourse was recently purchased by Symantec); and even the open-source IDS known as Snort.

In its simplest form, an intrusion detection system identifies and records potential security threats—such as someone scanning server ports or making repeated attempts to log in using random passwords. As such, it's not a replacement for other security measures. “An IDS is like the video camera in a convenience store or a bank,” says Stuart McClure, president and CTO of security consultancy Foundstone in Mission Viejo, Calif. A video camera doesn't replace the locks on the door or the safe, but if someone breaks through those security measures, the camera provides a record that can help nab the perpetrators and buttress the security system against future attacks.

Intrusion detection systems work in a number of ways. A network-based IDS

keep pace with the ever-evolving techniques of hackers. To address this shortcoming, some intrusion detection systems look for any network activity that lies outside a certain prescribed range of “safe” activities, an approach known as anomaly detection.

The problem with all intrusion detection systems is that they are not, and probably never will be, plug-and-play. Unlike firewalls, most intrusion detection systems require considerable technical smarts to set up and configure properly.

But the biggest management problem is the alarms. Every IDS, by its nature, generates alarms whenever it detects something that looks like suspicious activity. But every network is different, and computers aren't very good at telling the difference between, say, the “I Love You” e-mail virus and an e-mail message from your systems administrator that is merely warning you about the virus. As a result, most intrusion detection systems err on the side of caution. Consequently, they generate lots of false

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fast, optimized IDS appliances that can analyze network traffic at much higher speeds (and with more complicated signature detection algorithms) than ordinary servers running IDS software can. Finally, the market leaders, including ISS and Cisco, continue to hone their offerings to improve manageability and the intelligence of their network sensors.

But all those advances won't eliminate the need for human intervention. "I don't think organizations are willing to take the risk and liability of having a tool make [the decisions] for them," says Julia H. Allen, a senior member of the technical staff in the CERT Coordination Center at Carnegie Mellon University in Pittsburgh.

"The IDS is only as good as the people watching the IDS."

—Stuart McClure, president and CTO, Foundstone

"There's always going to be some human oversight in that process."

Others agree. "Intrusion detection is extremely high maintenance," says Bruce Larson, a system vice president and director of special network operations for San Diego-based SAIC International (he designs and deploys network security architectures for SAIC clients, including several government agencies and utilities). He estimates that you need at least one full-time network engineer to monitor and tune an IDS—or about \$150,000 in fully loaded annual salary costs.

One alternative: Outsource IDS management to a managed services company such as Counterpane Internet Security, whose employees will screen IDS alarms and forward only the most significant alerts to your IT staff, in return for monthly fees of \$7,000 to \$12,000.

How to Make IDS Work

But outsourced or not, intrusion detection systems are expensive: Appliances can run to \$15,000 or more apiece; full-blown sys-

tems may cost \$100,000 or more. Add staffing support, and an IDS represents a significant investment (not to mention a management headache). That's one reason the IDS market is still so much smaller than the firewall market, according to Jeff Wilson, executive director at San Jose, Calif.-based Infonetix, a market researcher and consultancy. The other is that it's so hard to manage: "The IDS market isn't that useful yet, and you have to sort through mounds of data to get anything useful out of it," he says.

On the other hand, if you have valuable assets to protect, you may have no option but to deploy an IDS. Auditors often require IDS technology before they will

certify a company's network as being adequately secured, particularly in highly regulated industries such as financial services and health care. Apart from regulatory requirements, deciding whether to buy an IDS is a matter of risk analysis. "You have to look at the whole solution space and ask, What am I trying to protect, what do I need, and what can I afford?" says CERT's Allen.

But deploying an IDS is no cakewalk. According to Rasmussen, most company's IDS deployments are doomed from the start. "Only one in four IDS implementations has any chance of success, and only one in 10 will be truly successful," says Rasmussen, citing issues around the problem of false positives, lack of adequate staffing and the failure of many organizations to put their IDS in the context of an overall security management process.

In other words, your IDS is merely one tool among many for securing your network. Layering multiple security measures together is part of the well-balanced "defense in depth" strategy recommended

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iNetPrivacy claims the utility is for users who value their privacy and freedom of communication (it could be useful, for example, in countries that restrict freedom of speech and deny access to outside news organizations and other information over the Web), but IT departments may want to be on the lookout for the tool.

For more information about the utility, visit www.antifirewall.com.

—Christopher Lindquist

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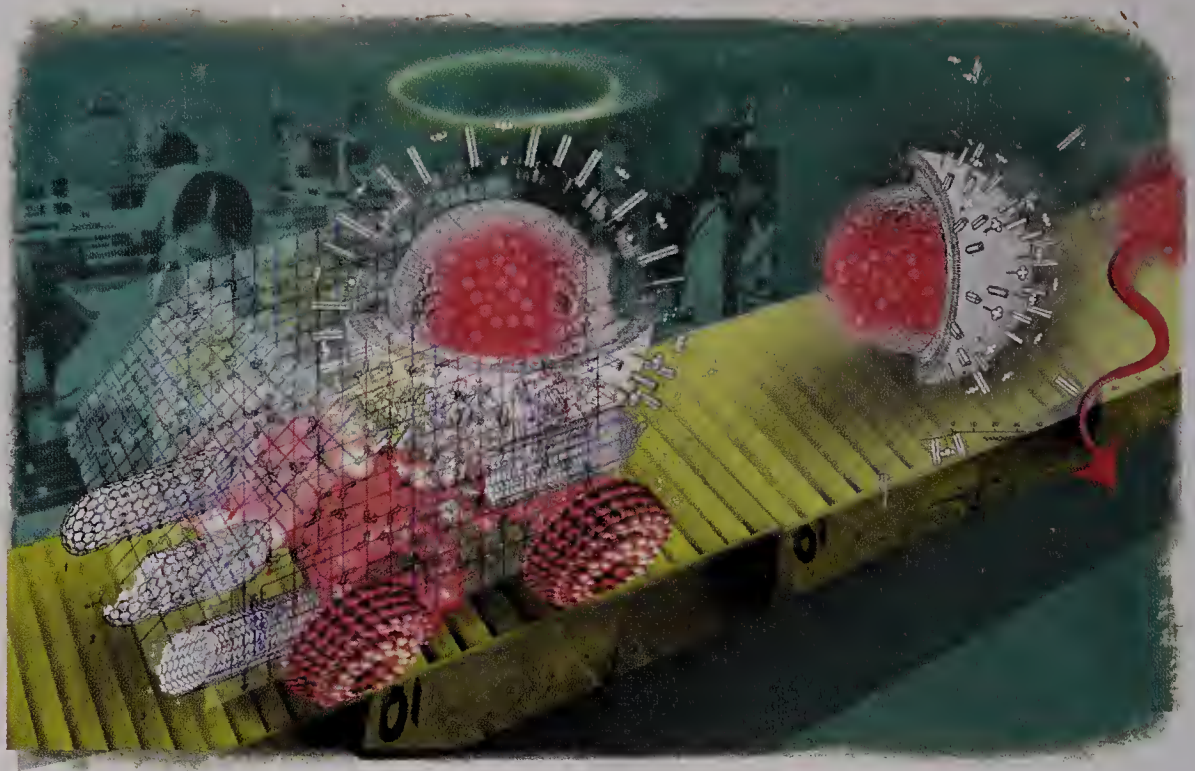
by many security pros. Allen suggests that IT executives consider adding the following components to their security strategy: network-based intrusion detection sensors, host-based intrusion detection, a central reporting and monitoring console for IDS alerts and other network messages, firewalls, log file analysis and strong user authentication.

The key is making sure that you have adequate processes in place to manage the data generated by your IDS and to respond accordingly. "The IDS is only as good as the people watching the IDS," says Foundstone's McClure. "If you're not going to monitor it, you might as well buy a \$50,000 doorstop." Rasmussen recommends that any IDS implementation should include clear processes for responding to alarms, policies governing network maintenance issues (such as IDS signature updates and operating system patches) and continued education of your network security staff.

Rasmussen also recommends starting small, with one or two IDS sensors at critical points on your network. That will make your IDS deployment small enough to be manageable, and give your network engineers time to learn the system and to tune it without getting swamped by thousands of alarms.

For his part, Williamson chose to test Arkansas State's IDS in midspring, when network traffic was low, giving his engineers several months to get settled before activity picked up again when classes began in the fall. And he's already starting to think of other uses for the IDS. They can adjust it to look for almost any type of network abuse, such as prohibited file-trading software. "If you wanted to, you could shut almost anything down," says Williamson. Not that he's taking such a draconian approach to network management—but the IDS is a powerful lens with which to keep an eye on network problems, and that is clearly a reassuring thought. ■

Freelance Writer D.F. Tweney (dylan@tweney.com) covers business technology and the Internet.



UNDER DEVELOPMENT

Helpful viruses

When Bad Viruses Go Good

MOST BIOLOGICAL VIRUSES have a nasty reputation. But scientist Angela Belcher believes that some viruses can be guided into performing a useful task: building high-tech materials.

Belcher and her University of Texas at Austin colleagues were intrigued by the way viruses can easily produce vast armies of new viruses. The researchers soon discovered that virus replication could also build nanosize materials for next-generation optical, electronic and magnetic devices. "We wanted to evolve biomolecules to control materials that nature has not evolved interactions with," says Belcher, who's scheduled to join MIT this fall as an associate professor of materials science, engineering and bioengineering.

Using genetically engineered viruses that are noninfectious to humans, Belcher and her team created liquid crystal suspensions of viruses and nanoparticles that could be cast into thin liquid crystal films. "We took advantage of the viruses' genetic makeup and physical shape to grow the material and to help them assemble themselves into structures that are several centimeters long," Belcher says. The material was stable enough to be picked up with forceps. She notes that it took about a week to grow a usable, uniform film.

Belcher believes that viruses have the potential to become cheap, efficient and environmentally safe nanotechnology building tools. "Biology makes material at moderate temperature using self-assembly and using nontoxic materials," she says. The most difficult part of the research was getting viruses that have evolved over millions of years to develop technologically usable materials, she adds. The researchers were ultimately able to evolve viruses during a period of months that could work on 20 types of materials, including semiconductors, magnetics and opticals.

Down the road, viruses could be used to produce microscopic switches, amplifiers and other devices. Such real-world applications, however, probably won't arrive for at least another five to 10 years. "Most of this research is still at the basic science stage," Belcher admits. Time enough, perhaps, for people to adjust their view of viruses.

—John Edwards

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COMPANY TO WATCH

Edocs

Self-Service Savings

Edocs looks to give IT some assistance with self-help savings

BY MERIDITH LEVINSON

BEHIND EVERY IDEA LIES A MUSE. In Kevin Laracey's case, the idea was for a software application that would let businesses and consumers manage and pay their bills online. His muse was his wife, Stephanie, whom he watched separate charges for business and personal calls on her cell phone bill with pencil and calculator for three hours each month.

To turn his idea into reality, Laracey, 37, founded Edocs in 1997. Edocs sells eaSuite, an online account management platform that helps companies including American Express (also an investor), AT&T Wireless, Humana and Target cut costs and improve customer service.

The software pulls billing, statement and account data out of legacy systems and presents it to individual consumers over the company's website. Consumers can view up-to-date account information whenever they want, pay bills, dispute

charges, and even manipulate the information to show—in the case of a credit card bill, for example—how much they spent on clothes versus groceries during a given month.

Stamford, Conn.-based Gartner estimates that moving the bill presentment, payment and dispute resolution process online can save companies at least \$13.1 million each year. The savings is so compelling that Edocs currently has more than 100 deployments of eaSuite in five industries—telecom, financial services, health care, retail and energy—in spite of the high implementation cost, which ranges from \$500,000 to \$5 million.

"When you have satisfied customer references coupled with a strong ROI story, that's a good recipe for success," says John Ragsdale, research director at Giga Information Group in San Jose, Calif.

But it wasn't always that way. The

company's first products didn't scale well, says Avivah Litan, Gartner's vice president and research director for financial services. But, she says, "they've gotten over that." And today Edocs is managing more online account management applications than any other company, she adds.

Litan says that Edocs' willingness to work closely with its customers and make them successful helped the company grow. "They're dogged. When they're after a contract, they're like a dog at your heels—they won't go away," she says.

Giga's Ragsdale adds that Edocs' vertical expertise is also a strength. "What Edocs brings to the table is that they work with their customers to develop unique sets of features for consumers that are only available in the online channel and that will entice consumers to migrate to the online channel," he says. "The fact that Edocs can walk and talk financial services, telecom, utilities, health care and retail is very helpful to them."

Of course, it won't be long before more enterprising MBAs invade the company's lucrative space. Currently, Edocs has no direct competition, though CheckFree, Metavante and even Pitney Bowes offer their own flavor of electronic bill presentment and payment.

To stay ahead, Edocs needs to continue to acquire more customers in health care, enter the European market and cross-sell its products into different divisions of organizations that are already customers, Litan says. She also advises the company to devote resources to developing and enhancing its existing payer-based applications for B2B billing and payments.

While Edocs has experienced 16 consecutive quarters of revenue growth at 85 percent each year, according to CEO Laracey, it's still not profitable. And if the company doesn't become profitable, Litan and Ragsdale agree, it will be ripe for acquisition.

"They're not going to go out of business," says Ragsdale. "But as a small, private company, they could be very attractive to a larger ERP or CRM vendor." ■

watching...

Edocs Inc.

Headquarters Natick, Mass.

Founded 1997

Employees 250

Products Edocs online self-service account management

Reason to watch No direct competition, long list of Fortune 500 customers

Hurdles to clear Still needs to make a profit; beef up its Web-based B2B billing capability; build market share in more verticals

Web link www.edocs.com



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PUNDIT

Web services

Investing in Web Services

"Nobody goes there anymore; it's too crowded."

BY STEVE BALOFF

WEB SERVICES HAS SOLD the technology industry a promise: the potential to redefine the way software is written, delivered, managed and sold. For those who recall the epic battle between DCOM and Corba a decade ago, the arguments will sound familiar. Yet it's still unclear if the Web services model will actually become the promised industry revolution, or simply serve as a feature set for tomorrow's products from today's well-established players. It makes me think of a sage comment from the great Yogi Berra: "It's like déjà vu all over again."

Web services is an amorphous blob of business apps, and different players define it differently. Ultimately it can be described as any application delivered over the Internet and accessed by almost any device, from PCs to mobile phones. What Web services can offer is a set of shared protocols and standards that permit systems to share data and services without requiring humans to broker the conversation. The result promises to be "on-the-fly" links between the online processes of different companies.

The middleware vendors and system integrators have made fortunes, but for many businesses, the resulting mess of hard-coded, inflexible bindings between legacy and new enterprise software is certainly not the solution they dream about.

The Web services dream, if fulfilled, could provide far more control for end users to assemble the needed building blocks that allow for tremendous flexibility and lower total cost of ownership. In today's world, the high-cost integration software and services that currently link enterprise applications are simply not sustainable. If it works,



Despite the near deafening roar of the software hype machines, Web services is still in its infancy.

—Steve Baloff

Web services will offer an escape hatch.

So here are my thoughts, with a few themes Berra would probably recall.

1. "It's pretty far, but it doesn't seem like it." Despite the near deafening roar of the software hype machines, Web services is still in its infancy. Early advocates say adoption will accelerate in the next 18 to 24

months, assuming that the industry meets several milestones, including firming up standards and releasing the next versions of your favorite ERP, CRM, SCM, EAI solutions that incorporate the important interoperability standards, beyond simple XML. Other standards are still coming along, including SOAP, UDDI, WSDL, SAML, WSUI, ebXML and WSFL (didn't that league fold a year ago?).

2. "If you can't imitate him, don't copy him." Like it or not, the legacy software providers will own most of the emerging opportunities for Web services. As the battle between Sun's Java 2 Platform Enterprise Edition (J2EE) and Microsoft .Net rages, there will be few chances for new companies to take significant market share. Legacy vendors, such as Microsoft and IBM, will use Web services to supplement their offerings throughout the software stack. The leading database vendors, system managers and security vendors will do the same. Not much "white space" will remain for new players, and only startups offering niche-based point solutions are likely to be left standing.

3. "I knew I was going to take the wrong train, so I left early." A skeptic might assume that much of the hyperbole surrounding Web services, as with DCOM and Corba before it, is nothing more than the self-serving cry of incumbent software vendors desperate for the next architectural wave to ride. Corporate IT managers are still reeling from the mountain of partially implemented, oversold applications and integration projects that were driven by the Web-induced competitive environment. While the promise of Web services is definitely attractive, the time frames and benefits have been overstated.

With Web services, another old Yogi-ism may still have the final word: "In [Web services], you don't know nothing." **CIO**

Steve Baloff is general partner at Advanced Technology Ventures in Palo Alto, Calif.

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Creating Value Online

Getting Real About Getting Paid

What if companies were compensated based on the value they created for their customers?

BY MOHANBIR SAWHNEY

AS A BUSINESS SCHOOL PROFESSOR, my compensation is based in part on how satisfied my students are. The corporate world follows a similar logic. CEOs get paid based on how shareholders value their company's stock. Companies such as Cisco Systems, Siebel Systems and Sun Microsystems link bonus compensation to customer satisfaction.

While most companies design employee compensation based on a "pay for results" scheme, they rarely apply the same logic to getting paid by their customers. When you think about how companies get paid for their products and services, you realize that it often has very little to do with customer success. Ideally, the more value you create for your customers, the more you should be rewarded. Value capture for the seller should be directly linked with value creation for the buyer. But that's not what happens in practice.

Consider a commercial printing company that does direct-mail catalogs. The more catalogs it prints for its customers, the more it gets paid. Yet its customers define success in terms of the dollar sales generated per catalog mailed. From their perspective, the more effectively they target customers, the fewer cat-



alogs they need to mail. So the printing company actually profits from the ineffectiveness of its customers.

Similar perverse logic applies to brokerage companies such as Ameritrade and E-Trade. They make their money on trading commissions, so they have an incentive to make customers trade more frequently. However, investment advisers will tell you that most investors are better off with a "buy and hold" strategy rather than trading frenetically in an effort to time the market. The more money that brokerage companies make from trading commissions, the less likely that their customers get superior returns.

Recognizing this problem, companies such as Charles Schwab and Merrill Lynch have moved away from commission-based compensation. Instead, they base their fees on a percentage of the client's assets. But even this doesn't align the client's interest with the interest of the brokerage firm. Ideally,

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my broker should get paid more if I get superior returns on my investment. How about charging customers fees indexed to investment performance? Brokerage companies could agree to be paid based on their performance relative to a benchmark such as the Dow Jones Index or the Russell 2000. Mutual funds could base their fees on their percentile performance within a style class (value, growth or large cap). So why hasn't any investment firm implemented this approach? Maybe it has something to do with the fact that investment advisers and actively managed mutual funds rarely beat indexes.

The IT industry suffers from the same problem. Enterprise software companies get paid based on the number of seats they sell, regardless of whether their software gets used and what people do with the software. Microsoft charges everybody the same price for Microsoft Office, regardless of what people do with the software. I have never used Access, and I have probably used less than 5 percent of the features in Excel. Yet I pay for

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paid 15 percent of the media spending budget of its clients. Companies such as Procter & Gamble are pushing to link agency compensation to outcome metrics such as sales, market share, advertising awareness and brand preference.

While service companies are at the forefront of performance-linked pay, product companies are also getting into the act. Hewlett-Packard has moved toward a flexible utility pricing model for its servers, where customers pay for only the resources they use. Its "partition pricing" scheme for its Superdome servers is based on the customer's forecasted need for additional HP Superdome partitions and the timing of activation of the pre-installed partitions. IBM's recent "e-business on demand" campaign is a move in the same direction.

To adopt a pay for results model, think through three issues.

1. Understand how your customers define value and business success. Wipro's customers may define value of a CRM project in terms of cost savings in customer interactions, total cost of ownership and execution time.

2. Set up metrics and benchmarks for evaluating performance. For instance, brokerage companies may define metrics as risk-adjusted return and quality of customer service, and set up appropriate benchmarks. Such metrics need to be quantifiable and objective.

3. Make sure that both you and your customer make significant commitments to the relationship. Both parties should have incentives to make the relationship work and not have the ability to hold the other party hostage. Vendors should ensure that they get deeply embedded into their client's business so that they can extract a fair share of the value that they create. Conversely, clients should ensure that vendors invest in training, support and deferred compensation in order to have an incentive to stay in a long-term relationship.

In difficult economic times, customers are pressuring their suppliers to become more accountable for results. But the pricing mechanisms that most suppliers use are still based on the archaic notion that you get paid for selling a product or a service. The sooner you understand that you should get paid for creating value for your customers, the better positioned you will be to succeed in your business. **CIO**

Ideally, the more value you create for your customers, the more you should be rewarded. But that's not what happens in practice.

all the features. The result: There is little incentive for software vendors to understand what features really add value and what business outcomes their customers are really trying to achieve.

IT consultants get paid based on time and materials. So the longer they stick around, the more money they make. Perhaps that is why, a decade ago, system integrators such as Cambridge Technology Partners shook up the market when they introduced a "fixed-price/fixed-time" model.

For What It's Really Worth

But the winds of change are beginning to gather momentum. Last year, the Indian software company Wipro Infotech announced a "success fee" model, where it gets paid based on the value generated for the customer. The company fixes the price based on the value created for customers, and adds a premium if it completes the project before the deadline. Wipro is betting that it can implement software more successfully and faster than competitors, and that it will generate higher margins.

The advertising industry is also being shaken up by the move toward the payments by results (PBR) model. In PBR, a part of the advertising agency's compensation is contingent on its performance measured on predetermined criteria. This throws out the time-honored practice of advertising agencies being

What's your compensation based on? Send e-mail to netgains@cio.com. Mohanbir Sawhney is the McCormick Tribune professor of e-commerce and technology at Northwestern University's Kellogg School of Management. He can be reached at mohans@kellogg.northwestern.edu.



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From the Publisher

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A New Pitch

WHENEVER WE ASK READERS of *CIO* what their critical issues are, keeping up with new technology is always in the top 10.

I was thinking of chief information officers' penchant for new technology when I visited a summit hosted by a major venture capital firm. I enjoyed mingling with CEOs from startup companies and learning about what they were doing.

In one afternoon session, the host venture capital firm asked the CEO attendees to step up to the microphone and give an "elevator" pitch to a panel of experts. As many of you know, an elevator pitch forces the presenter to encapsulate the benefits of doing business with his company in 30 seconds—max.

Not an easy task.

My observation from listening to scores of these pitches was this: With a few exceptions, startup tech CEOs may know technology, but they are clueless about marketing. They simply believe that if they build it, customers will come.

In 1998, the VCs were right by saying to dotcom companies, "Here's \$5 million. Spend \$3 million of it on sales and marketing in the next six months."

Why were they right? Because nothing happens until something gets sold. In hindsight, where the VCs erred was investing in companies with no real business plans and no real



Gary J. Beach

products, and management teams more interested in acquiring a condo in Aspen than acquiring customers.

So here we are four years later, two years after the dotcom bubble burst and 20 months into a massive reduction in IT spending. Venture firms are sitting on hoards of cash. And, though fewer, a good number of startup tech companies are seeking venture funds to get going.

What we need is the second coming of the venture capitalists. (That may sound self-serving coming from the publisher of a magazine that depends on advertising revenue as its prime source of income, but the VC community needs to repeat its marketing mantra from 1998.) But this time around, the VC wave must invest in real companies that have real products that can solve the real problems faced by CIOs.

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AGENDA

SUNDAY, OCTOBER 6

8:00 am – 1:30 pm

Golf Tournament

3:00 pm – 5:00 pm

Registration

6:00 pm – 8:00 pm

**Registration, Welcome Reception
& Golf Awards**

8:00 pm – 10:30 pm

**Night @ The Improv, sponsored by
Information Builders**

MONDAY, OCTOBER 7

Building Internal Partnerships

7:00 am – 8:00 am

Breakfast

8:00 am – 8:15 am

Welcome

Jonathan Zittrain

*Conference
Moderator and
Co-founder, The
Berkman Center for
Internet & Society,
Harvard Law School*

Abbie Lundberg

*Editor in Chief, CIO
Magazine*

8:15 am – 9:15 am

**The CIO's Most Essential
Partnership**

Cecilia Claudio

*Senior Vice President
& CIO, Farmers
Group*

Having an enthusiastic, motivated and flexible IT staff is crucial to building relationships both inside and outside the organization. In order to ensure IT's alignment with business strategies, the CIO must

have a solid partnership with the IT staff. How do you give your staff the confidence in themselves and management that enables them to then transform the business?

9:15 am – 10:30 am

Business Ethics in Action:

A Real-Life Scenario Panel

Jonathan Zittrain, Moderator

From the recent spate of accounting scandals, to the continuing debate over the use and abuse of customer information, ethics is a hot topic. Who decides what's ethical – and what is the CIO's role and responsibility? What internal partnerships does a CIO need to forge to ensure ethical business practices throughout the organization? In this innovative session, conference moderator Jonathan Zittrain poses "what-if" scenarios to a panel of key corporate players, including a CIO, CEO, corporate counsel and auditor.

10:30 am – 11:00 am

**Coffee Break and
Sponsor Displays**

11:00 am – 11:45 am

Sponsor Briefings

11:55 am – 12:40 pm

Sponsor Briefings

12:40 pm – 2:00 pm

Lunch

2:15 pm – 3:30 pm

**Best Practices for
Change Management**

**Martha Heller,
Moderator**

*Director, CIO Best
Practice Exchange,
CIO Magazine*

Panelists

Randy Krotowski, CIO, Chevron

Texaco Latin American Products

Gene Elias, Vice President IS/IT,
Quiksilver

Roger Coville, Vice President &
CIO, Abercrombie & Fitch

Effective change management requires solid leadership, clear communication, willing users and executive buy-in. No wonder many CIOs can't seem to get it right. This panel of CIOs, drawn from the CIO Best Practice Exchange, CIO Magazine's private online network of senior IT executives, offers advice on the tricky topic of implementing full-scale, technology-enabled business process change. It takes more than a few good partners.

3:30 pm – 4:30 pm
**The CIO's Role in the
Executive Suite**

Dawn Lepore

*Vice Chairman,
Technology, Opera-
tions & Administra-
tion, The Charles
Schwab Corporation*

As information technology increasingly drives all areas of the business, CIOs are taking larger roles as full members of the executive team. The actions and skills required to build effective partnerships at this level add a whole new dimension to the CIO's job. What does it take to get there – and to shine in the role?

4:30 pm – 5:15 pm
**CIO Peer-to-Peer
Connection Time**

6:00 pm – 7:30 pm

Networking Reception

TUESDAY, OCTOBER 8

Building External Partnerships

7:00 am – 8:00 am

**Breakfast & Informal
Discussion Roundtables**

8:00 am – 8:15 am

Welcome Back

Jonathan Zittrain

8:15 am – 9:00 am

**Private/Public Partnerships
for Protecting the
Nation's Infrastructure**

James E. Geringer

*Governor, State of
Wyoming*

This special session is produced in cooperation with the National Critical Infrastructure Assurance Office (CIAO) in the US Department of Commerce.

9:00 am – 10:00 am

**Working Together: New Models
for the Vendor/Customer
Relationship**

A panel of CIOs and vendor representatives talk about the new types of relationships they are developing, what it takes to achieve them, and how each side is working toward a win-win situation.

10:00 am – 10:45 am

**Key Factors for Business
Alliance Success**

It takes numerous factors to make a successful business alliance – and only a few to break it. Every step is crucial, including articulating the shared vision and goals,



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agreeing upon systems design and implementation, and designating partner roles and responsibilities. How do you build a successful business alliance – and how do you keep it working? This case study explores one such partnership in depth.

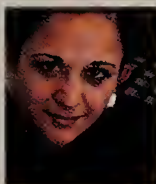
10:45 am - 11:15 am
Coffee Break & Sponsor Displays

11:15 am - 12:55 pm
Sponsor Briefings

12:55 pm - 2:00 pm
Lunch

2:00 pm - 3:30 pm
InFocus Workgroup Breakout 1: Collaboration & Knowledge Management in a Distributed Environment

Atefeh Riaz
CIO, Oglivy & Mather Worldwide



How can we effectively share knowledge and lessons learned across cultures, languages, time zones and technology platforms? How do you get everyone to overcome "sharing anxiety" and eliminate the barriers to enterprise-wide collaboration? Riaz discusses organizational and technical issues surrounding collaboration and knowledge management in a global company.

2:00 pm - 3:30 pm
InFocus Workgroup Breakout 2: Smarter Spending: Optimizing Every IT Dollar

Greg McDonald
Director Finance, Enterprise IT, Ingersoll-Rand



Optimization of the IT investment focuses on determining the precise balance of cost, risk and return (value). McDonald contends that optimization is an art, because it is not exactly a science. While there are many factors, formulas, metrics and methods with wide-ranging application, value determination is subjective, and value is the underlying premise of the

investment. Optimization is more about risk than it is about money, and each organization has a unique cost-risk profile. How do you determine yours, and make the best investments accordingly?

2:00 pm - 3:30 pm
InFocus Workgroup Breakout 3: Outsourcing: Risk Management
Edward Hansen and **Akiba Stern**

Partners, Shaw Pittman



In an environment where companies are seeking to trim costs and focus on core business competencies, outsourcing can be a sound strategy. But it can be a risky business. Outsourcing deals that are executed improperly can result in tremendous hardship and expense. Hansen and Stern provide case studies and systematic processes that speak directly to success for CIOs and senior executives who may be considering outsourcing IT or business processes, and show how outsourcing principles can work for you in other technology deals.

2:00 pm - 3:30 pm
InFocus Workgroup Breakout 4: Tactics & Skills for Contract Negotiation
Wayne Bennett
Partner, Bingham Dana LLP



This interactive session is devoted to the preparation and discussion of (1) a list of procedural and substantive pitfalls to avoid in IT contract negotiations and (2) a list of tactics and approaches that can help bring contract negotiations to a successful conclusion. Attendees should be prepared to contribute problems they have encountered as well as approaches that have succeeded.

3:45 pm - 4:30 pm
The CIO's Role in Marketing to Customers

Regis McKenna

Chairman, The McKenna Group, and author of



"Total Access: Giving Customers What They Want in an Anytime, Anywhere World"

Forget the debate over whether marketing is an art or a science. It has become a technology, and today's CIO must also be the chief marketing architect, someone who builds connections with customers, distributors and retailers. The CIO is the one who can align all the diverse goals of the enterprise into one coherent structure that provides total access.

4:30 pm - 5:15 pm
A Special Partnership

5:15 pm - 5:30 pm
Closing Summary
Jonathan Zittrain

5:30 pm - 6:30 pm
Reception & Book Signing with Regis McKenna

7:30 pm - 9:30 pm
Dinner & CIO 20/20 Vision Award Winner Panel

Esther Dyson
Chairman, EDventure Holdings



Dyson reflects on the profound impact of information technology on the way we live and work today, then joins with the technology developers and implementers who are some of this year's CIO 20/20 Vision award winners to get their perspectives on what lies ahead.



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EXECUTIVE Summaries

September 15, 2002

COVER STORY | Governance Models That Work

By Christopher Koch | 48

Most top executives still regard IT as a shopping cart full of hardware, apps and systems, and the extent of their involvement is to say, "We'll take that one and that one but not that one." That approach leads to flavor-of-the-month technology spending. Or, in times like these, a crippling lack of spending. What companies need are smart governance mechanisms that keep IT and the business jointly accountable and responsible for linking technology to the most important company strategies. Governance can be driven from anywhere in the company through executive steering committees, IT councils, and architecture or business process teams. To be effective, the mechanisms must be linked and should be consistent with the company's prevailing business strategy. At State Street Corp., an IT executive committee focuses on IT investments but also discusses business strategy and IT's role. At 3M, governance begins in business units, identifying processes that can be improved. For any company, an appeals system and funding for experiments encourages flexibility and risk taking.

"You can't solve everything with committees. You have to figure out the most practical way to interrelate and be prepared to change the way you do it."

—DAVID DREW,
VICE PRESIDENT OF I.T., 3M

Winning Over IT's Toughest Users

By Stephanie Overby | 68

ALMOST EVERY CIO HAS HORROR STORIES about difficult users. Health-care CIOs say doctors are the hardest to deal with. IT executives in the high-tech sector could make a case that techno-savvy employees are the most demanding—and they're right up there with the change-averse technophobes often found in civil servant positions. The ability to handle tough users is crucial to the successful adoption of expensive enterprisewide applications. CIOs for Children's Health System in Milwaukee, the city of Des Moines and IT services company EDS use a number of tactics to neutralize user resistance. These include introducing only one big change at a time, establishing reward and recognition systems for using new technology, and making sure every major project has value metrics that can be publicized. CIOs at high-tech companies should establish mechanisms for user input and invite feedback. For busy users such as doctors and police officers, CIOs should explain new systems in terms they can relate to, such as improving care, saving time and the like.

AMF Bowling's Sales-Force System

By Alice Dragoon | 76

WHILE WALKING THROUGH BOWLING CENTERS, AMF Product's bowling equipment sales force collects customer data with PDAs running EApplix iSales software, using drop-down menus to note the age and type of equipment. Later, they can sync up with headquarters via laptops. The system gives reps a better handle on what equipment their customers have—and what they'll most likely want to buy—so that they can focus their sales efforts appropriately. According to Wendy S. Close, CRM research director at Gartner, AMF's deployment succeeded the second time around—the previous attempt failed miserably—because it articulated clear goals: improve customer service by facilitating internal communication, pursue targeted marketing opportunities and help reps better manage their time. AMF gained commitment up front from senior executives and sales managers, and built buy-in by involving sales representatives in development from the start. For example, AMF listened to its reps' idea of using handhelds in combination with laptops. AMF was also wise to use data collected by salespeople for targeted promotions—unlike many organizations that turn their salespeople into data collectors for marketing without providing any benefits back to the sales staff.

Warehouse Management Systems

By Meridith Levinson | 82

IN AN IDEAL WORLD, company warehouses would all be automated by a single management system that integrates with the rest of the company's operational systems. But many manufacturers, including Cott, Nexcom and Sunbeam, are forced to run multiple warehouse systems, either because they have inherited them through acquisitions (and it would be too costly and time consuming to convert the new systems) or because their decentralized business model gives their various warehouses the liberty to decide which system is right for them. The drawbacks of running multiple systems can include lost efficiency, data errors and greater maintenance burdens. But there are several best practices these companies use to mitigate the penalties of having multiple warehouse systems. One is to compare warehouse system data with the same data in the ERP system and verify both with manual counts. Another is to standardize data formatting, storage and sorting across systems. It can also help to synchronize with back-end systems on a regular—if not real-time—basis.

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